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Original Department.

Lecture.

PURULENT INTERLOBAR PLEURISY; DISCHARGE THROUGH THE BRONCHIAL TUBES.

Delivered at La Charité Hospital,
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Gentlemen:—My lecture to-day will be devoted to the consideration of the diagnosis of the malady of the patient in No. 17, St. Charles' ward.

I will first read the observation in full, as presented by my chef de clinique, M. Josias. The patient is a tailor, 44 years of age, who entered M. Hardy's service on February 20th, 1882. His family antecedents are good, his father dying at 80 years of age, from the effects of an accident, and his mother at 71, of a tumor in the axilla. Two sisters died very young, and he has four sisters and a brother living, all in good health.

Personal antecedents—no scrofulous accidents during childhood; at five years of age, smallpox: at twenty, gonorrhœa and chancre, which lasted fifteen days, and was not accompanied by bubo, syphilides or mucous patches. When 27 years of age he had an eruption of chocolate-colored spots on the breast; they were as large as a dime piece, not at all itchy, of an oily aspect, and persisted five or six years (pityriasis versicolor).

At the same period, while in Italy, the patient had a series of febrile attacks, concerning which he can furnish but incomplete data; they supervened twice monthly for two months, and consisted in a sensation of heat with profuse sweating and dyspnœa.

When 38 years of age he suffered from slight pains in both feet, with swelling of the toe joints, and since he has had similar pains every winter.

In October, 1880, he had attacks of dyspnœa, occurring principally at night, for ten days, accompanied with a painful stitch in the præcordial region, the slightest movement inducing dyspnœa. There was also considerable cough, with purulent expectoration, which continued, but without hæmoptysis, up to March, 1881.

On February 4th, 1882, pain supervened in the right side, without chill or dyspnœa, and since then he has been obliged to remain in bed, any attempt at standing proving impossible. There was no cough or expectoration. On February 18th he suddenly felt a very bitter liquid mount from the chest to the throat, and immediately vomited about a basinful of greenish, purulent liquid, of very fetid smell. For three hours after he was harassed with continual coughing, accompanied by excessive purulent expectoration, and this has troubled him since almost incessantly, up to the time he entered the hospital.

At present, although a man of apparently strong constitution, he seems almost worn out; the body covered with sweat, and the eyes somewhat sunken. Respiration is frequent and noisy; the cough almost incessant, but soft and not painful. Expectoration is abundant, frothy, slightly purulent, but not at all fetid, as it was yesterday.

Inspection shows no appreciable dilatation, or œdema of the thoracic parietes. Sonority is normal on both sides of the chest anteriorly; the vesicular murmur is somewhat obscure, and re-

placed by rude respiration, without râles, on the right side; on the left it is normal. Posteriorly, vocal fremitus is not as evident as usual low down on the right side, which seems, also, somewhat dilated; there is also diminution of elasticity on percussion over the right apex, and dullness over the lower two-thirds of the same side. On auscultation. there is blowing respiration over the angle of the scapula on the right side posteriorly, with slight friction murmur, and subcrepitant râles lower down.

There is neither egophony nor bronchophony, but amphoric souffle, with metallic tinkling, is heard over the right scapula posteriorly, when the patient coughs. The liver is not hypertrophied, but is somewhat painful when percussed.

February 22d. He rested well during the night, but had an attack of coughing, with considerable expectoration, this morning. Matters expectorated are slightly purulent and do not contain blood. There is now complete dullness over right side posteriorly; amphoric sounds are heard at angle of scapula, but no metallic tinkling. The general condition of the patient is satisfactory; the pulse at 120, the temperature 102°.

In the evening of the same day the physical signs were found to be about the same; the friction murmur being more evident, and heard over a greater extent of surface. There was considerable purulent non-fetid expectoration during the day.

On February 23d expectoration was more abundant and somewhat fetid; the fever continued with sweating. Over the lower third of the right side posteriorly there was still marked dullness with friction murmur and subcrepitant râles. There is amphoric souffles at the angle of scapula when the patient coughs. The left side is normal.

At 3 P.M. on the 24th he had a sudden discharge of about eight ounces of fetid pus. On February 25th his condition is about the same. There is considerable frothy, muco-purulent expectoration, which, on histological examination, is found to contain leucocytes in great number; very large pavement cells, with large nucleus, a few blood globules, but no elastic fibres. The cough is soft, almost immediately followed by expectoration.

Examination of the chest shows slight œdema of the thoracic parietes on the right side, but no dilatation.

Vocal fremitus remains somewhat obscure at the base of the lung, but dullness is not at all so marked.

Auscultation reveals large, dry bronchial râles under the right clavicle, and posteriorly on the same side sibilant and subcrepitant râles at the base, and friction murmur over the inferior two-thirds of the lung, obscuring the respiratory sounds. At the angle of the scapula the cough has a metallic ring.

Such, then, is the observations in detail, and it will be, I think, evident that the diagnosis presents many difficulties, and can only be established by proper analysis and discussion of the various symptoms presented by our patient.

The first which particularly attracts attention is the sudden and profuse expectoration of a fetid purulent liquid; to this phenomenon the designation vomica has been applied in France. Vomica, or the sudden discharge of pus through the bronchial tubes, was generally attributed by the older authors to the evacuation of a pulmonary abscess, and according to Laennec, such discharge implied the existence of lung cavities, to which, indeed in the English systems of pathology, the term "vomica" has been applied, but such is not the case.

To-day it is generally admitted that a discharge of pus through the bronchial tubes oftenest merely passes through the lung, originating either in the chest or abdomen.

Of all the morbid conditions which may give rise to such a discharge, pleurisy must be placed in the first rank. Pleurisy, in such a case, may be compared to a pleural abscess, rupture of the subjacent serous membrane and lung tissue establishing a communication between the purulent collection and bronchial tubes, permitting evacuation of the liquid.

This is the prominent symptom in the case before us; the sudden expectoration of a considerable quantity of pus after a fit of coughing would seem to point to the existence of empyema.

It must, however, be admitted that almost all the symptoms which usually characterize empyema are wanting, with the exception of the stitch in the side and the febrile reaction. The patient is, it is true, extremely feeble, and cannot support himself in a standing position; he has also some tendency to sweating, but the period of production of the pleurisy remains exceedingly obscure.

If it be really a case of empyema, revealed by the discharge of pus through the bronchial tubes, we are obliged to admit the existence of a communication between the pleural cavity and the exterior; in other words, we should seek for and find all the signs of pneumothorax.

But our patient presents none of the signs which would permit us to affirm the existence of pneumothorax or hydro-pneumothorax, and

what is more, all the symptoms of effusion into the pleura are wanting.

When a pleuritic effusion is discharged through the bronchial tubes we have generally dilatation of one side of the chest, with dullness at the base and exaggerated sonority at the apex of the lung, amphoric sounds, metallic tinkling, etc. The absence of all these symptoms renders the diagnosis difficult and obscure.

We consider that the discharge of pus in this case originates from empyema, but the assertion alone is not sufficient, it remains for us to determine with precision the point where the effusion was developed.

There has been no effusion into the grand pleural cavity, for the stethoscopic and other physical signs of such effusion are wanting. The purulent collection is in effect in the interlobar space. You are aware that pleurisy may be partial and limited to the inferior surface of one lobe.

Adhesions may in this way be formed about the interlobar space, so as to constitute a closed cavity, in which a liquid effusion takes place. While this inflammatory process is going on, the symptoms engendered are obscure, limited generally to slight pain and some slight derangement of the general health.

As the effusion increases the two lobes are compressed, and sometimes become so solidified that the purulent collection may be mistaken, as it was by the earlier authors, for an intra-pulmonary abscess.

In our case the liquid was effused under analogous conditions, finally acquiring such a volume as to compress the lung tissue; then ulceration and perforation ensued, and the purulent collection was evacuated through the bronchial tubes.

These considerations, gentlemen, are by no means hypothetical; they are drawn from the consideration of the symptoms presented by our patient. When he first entered the service we found on auscultation metallic tinkling and amphoric sounds with the cough; these signs permitted us to affirm the existence of a cavity containing air in contact with the lung. At present there is merely a metallic ring to the cough, showing that the cavity which formerly gave rise to metallic tinkling still exists.

If, however, we take into account the conditions necessary for the production of this metallic sound, and the fact that it is heard only when the patient coughs, we are led to believe that the cavity is but of small dimensions.

From all these physical signs we conclude that this is a case of empyema, localized in an interlobar space, and in direct communication with the bronchial tubes, which explains the mixture of air with the purulent expectoration.

If the opening is obstructed, there is, for a time, cessation of the cough and expectoration, which again reappear as soon as the communication is re-established.

I cannot dissimulate how great is our embarrassment when we seek to determine the causes which lead to the development of this form of empyema.

Our patient is an over-worked, poorly nourished tailor, and it would seem that the malady was brought on by cold, and the nature of the liquid influenced by the bad state of the general health.

There is, then, interlobar pleurisy on the right side. But what is the precise location? Between which lobes is the liquid contained? This local diagnosis is always extremely difficult, but as we find the metallic ring with the cough and the metallic tinkling at the inferior angle of the scapula, it would seem very probable that the space between the two upper lobes on the right side contained the liquid.

What are the prospects of the case? I do not hesitate to say, gentlemen, that the prognosis is serious. Our patient has intense fever, due to the constant production of pus, and is in imminent danger of falling into the hectic state, with all its consequences. We should not, however, be too positive, for similar cases are on record, where complete recovery ensued.

What treatment is to be pursued? I will not discuss the opportunity for direct intervention, for thoracentesis is evidently not indicated. We will then, on the one hand, attempt to moderate the violence of the inflammation, and on the other, sustain the strength of the patient.

To fulfill the first indication we apply successive flying blisters to the affected side.

To respond to the exigencies of the second, we administer tonics, soft extract of cinchona, brandy and the more generous wines. Need we have recourse to any form of antiseptic medication? The use of antiseptic preparations and simple or aromatic fumigations is undoubtedly rational, but has as yet hardly received the sanction of practical clinicians.

Note.—To complete this lecture and observation it may be added that the patient submitted to the treatment above indicated; after several attacks of purulent expectoration, the quantity discharged being each time lessened, finally recovered completely, and left the hospital on April 14th, in excellent health.

COMMUNICATIONS.

INTRODUCTION TO STUDIES IN CLINICAL GYNECOLOGY.

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The fact should be clearly kept in mind that a knowledge of the science of medicine does not give skill in the art of practice, however much it may help one to learn it.

Men profoundly versed in the science of medicine may be poor practitioners, and men whose knowledge of the science is very limited may attain some reputation in practice. The best qualified physician is the one who knows most of both the science and the art. The subject for consideration to-day is the methods of investigation to be adopted in practicing the art of gynecology. Before beginning the actual work of examining patients it is necessary to know how to do so.

There are several methods of investigating the sick and injured, given in text-books and taught by professors, but most of these are better adapted to general practice than to special departments of medicine.

The methods which I desire to teach you are circumscribed, and perhaps less complicated because they are limited to the diseases peculiar to women.

In examining patients you must first settle definitely in your minds the object to be attained and how to attain it. Some rational system of investigation should be mastered in all its details before undertaking actual practice. To engage in clinical study without such preparation is like trying to read a language without knowing its alphabet.

First obtain all the facts of the case in hand; secondly, arrange the facts in their natural relation to each other; and finally, make deductions from the data obtained.

These will be easily remembered in the following order and association: observation, classification of things observed, and conditions indicated by the sum of the information obtained.

I desire to urge you to give special attention to the art of observation, because it is often neglected by teachers and students. The systematic way in which facts are presented in books and oral lessons enables the student to acquire the habit of classification in all branches of learning. The mental training obtained in the study of mathematics and logic prepares men to make reasonable deductions from the facts in science; but I know of no school in which thorough training is given in the art of observation. It is because of this defect in preliminary education and in learning clinical medicine, that practitioners are led into error sometimes, in making diagnosis. They fail to observe all the facts, and hence their deductions are liable to be incorrect.

One who misses a page here and there, in reading a book, is in constant danger of misunderstanding the author. The examination of a patient should begin by a general inspection; and in order to make that inquiry complete and profitable, certain questions should be raised in the mind of the examiner; such, for example, as what is the general appearance of the patient under observation? What size? Regular or defective in general outline? Lean or corpulent? What temperament? Is the face pale or flushed? Languid or vigorous? Sad or cheerful? Calm or excited? Intelligent or stupid? What diathesis is indicated, if any? In short, does the general physiognomy indicate health or disease.

All these interrogations are made by looking inquiringly at the patient. There are so many questions to be answered in this connection, that you may find some difficulty in promptly remembering them; but by patient practice you can train your mind and eyes so that you can take advantage of a rule of observation employed by critical investigators, which is this: having a type of a normal organization in mind, you can scan a given case, and detect any deviation from the standard of healthy formation and appearance. The artist, in looking at a picture or statue, does not necessarily question every line of the drawing or form by itself, but his trained eye catches any defects that there may be in the work before him.

Just here a brief reference may be made to arrangement of the information obtained by an examination.

The classification of facts is simply putting together those which are similar in character. The arrangement of material things in groups is familiar to all of you. A well arranged library, in which all books pertaining to a given subject are placed side by side, is a fair illustration of this kind of classification. Facts and ideas can be arranged in the mind upon precisely the same principles. The advantage of classification is that it aids comprehension and memory. By recalling one of a group of facts which have been associated in the mind, the rest will follow in easy and natural order. There are two methods of classifying the points in the clinical history of a patient. One

is to obtain all the information possible, and then arrange it in order. The other is to classify the facts obtained at each step of the examination. The former method requires a mental grasp and tenacity which few possess, and therefore I would advise you to adopt the latter.

The information obtained by inspection may be classed under four heads: *First.* The original character of the organization, whether perfect or imperfect in general outline. *Second.* If imperfect, whether by imperfect development, giving lesions of form, lesions of structure from inherited or acquired disease, and inherited tendencies to disease, known as diathesis. *Third.* Evidences of disease, expressed in the face, either acute or chronic, and of what class. *Fourth.* The temperament, which simply means the preponderance of a certain portion or portions of the organization. It is quite important to be able to recognize the temperament of each patient, as it has a bearing upon the tendencies to disease. The term temperament is an unfortunate one, because it does not give any idea of the meaning implied; but long use has given it claims which cannot be easily set aside. I have observed that students often fail to clearly comprehend the use of the term in clinical medicine. Hence, a brief explanation may be profitable.

You are aware that in describing the human organization, it is divided into four sections, or systems, the nutritive, circulatory, nervous, and muscular, which includes the osseous structures. Now, when either of these systems predominates in extent of development in a given person, we say that he or she possesses that temperament. There are, therefore, four temperaments, viz., the *muscular* (called bilious), the *nutritive* (called lymphatic or phlegmatic), the *sanguine*, and *nervous*.

In a uniform and well developed organization neither system predominates. They all exist in normal proportions. Examples of this well balanced type of organization are said to have been presented by such men as Washington and Franklin. We have at present no suitable term to designate such organization, in which all parts are equal in development. Such a condition represents a typical union of all the temperaments; the highest order of normal development. Two of these systems may predominate, which gives what may be called a compound temperament. For example: the nervous and circulatory systems being more developed than the rest of the body would give the sanguine-nervous temperament. And so by the combination of two of any of the systems the other compound temperaments are formed.

A few examples of what may be accomplished by inspection will tend to fix in the memory what has been said upon this subject. Suppose a patient appears to be about the average size, well formed, full in flesh, small bones, fair hair, blue eyes, pale face and lips, and facial expression of weariness and discomfort. These conditions would indicate the phlegmatic temperament, and, perhaps, the strumous diathesis, anæmia, mental discomfort and want of general strength. Take another patient, tall, and spare in flesh, large bones and muscles, large brain, dark hair, and sallow, dry skin; the face expresses suffering and an excited, restless condition; these characteristics indicate the nervous-bilious temperament, faulty nutrition, probably from some organic disease which gave rise to physical suffering.

To illustrate still further the value of this process of general inspection of patients, let me state the partial history of a case seen in private practice. A lady called to consult me regarding her son, a little fellow seven years of age. After a very brief survey of the patient I informed his mother that he had recently had scarlatina, and that within a few days his feet had been swollen; that his urine was scanty and of a peculiar dark color, as if mixed with soot. I also stated that when a child he had suffered from sore eyes, and when an infant he had snuffles, and that his father had been subject to rheumatic pains in years gone by. All this was told to the mother before asking her any questions and before examining the patient further than to look at him. She acknowledged that I was right in every particular, and expressed surprise that I should know so much of one whom I had never seen or heard of. In the estimation of my client I had established a reputation upon which an enterprising character could have made a fortune. When I told her how I made these discoveries, she at once understood that it was simply a matter of clinical observation. A glance at the boy showed that exfoliation of the cuticle, which occurs after scarlatina, was still going on; the face was pale and puffy, indicating commencing dropsy from acute nephritis, a sequel of the eruptive fever. I also noticed that he had a delicate scar upon the cornea of each eye, the result of a former keratitis. The form of his nose and the character of his teeth indicated an inherited syphilis, and from the appearance of his mother and other facts in sociology I presumed that the father was the one who transmitted the specific disease.

EVIDENCE OBTAINED FROM PATIENT'S TESTIMONY.

The *age* of the patient should be ascertained, because that suggests the possible existence of the diseases which are likely to occur at certain periods of life. Care should be taken to compare the real and apparent age, in order to tell if the patient is prematurely old or well preserved. This interrogation will also serve to keep in mind the fact that, in early life, acute diseases prevail, while degenerations are usually limited to advanced life.

It is important to know the social relations of a patient—that is, whether she is married or single. If married, she is liable to the diseases and accidents attendant upon child bearing. A married woman who has never been pregnant, suggests that she is possibly sterile, either from choice or because of some defect in her organization. Single women ought to be limited in the range of diseases of the sexual organs, and we may take it for granted that they are until we obtain evidence to the contrary.

Having made a general inspection of a given case, and learned the age and social relations, an examination of the various portions of the body should be made, in systematic order. To do this conveniently, one group of organs should be examined at a time. This group of organs constitute the various systems, classified as follows:—

THE NERVOUS, NUTRITIVE, MUSCULAR, AND SEXUAL SYSTEMS.

The first three are subdivided as follows: The nervous has two grand divisions, the cerebro-spinal and organic. The nutritive has four subdivisions, the digestive, circulatory, lymphatic and excretory, and the third has the osseous and muscular.

The present purpose is to outline the methods of investigating the sexual system, but in order to do that successfully, it is necessary to be able to examine the whole body. No one can be a trustworthy specialist without having a thorough knowledge of the whole organization. All the parts of the body are so bound together by mutual relations that one cannot accurately diagnosticate the diseases of one portion without knowing the condition of all the others. On account of that fact I must refer to the principles upon which the examination is made of parts other than the sexual system.

Briefly, it may be stated that the two principal subjects of inquiry are the condition of the function and structure of the organs under examination. Perverted function of the cerebro-spinal division of the nervous system is manifested through derangements of sensation and motion, and abnormal states of the organic nerves is indicated where nutrition is deranged, while the organs of nutrition are free from organic disease. The condition of the circulatory system is indicated by the color of the skin and mucous membrane; the character of the pulse and the heart sounds.

General nutrition may be estimated by the appetite for food, the excretions and the state of the flesh generally. These are meagre hints, but if you keep them in mind while examining cases in the department of gynecology, you will guard against overlooking affections of the general system which might modify or cause diseases of the sexual system.

In applying the principles (already hinted at) in the investigation of special diseases of the sexual organs, we find that morbid action is manifested by symptoms and physical signs. The symptoms may be classed under three heads. First, deranged nerve action; Second, deranged functions of the organs affected; and, Third, modified muscular motions.

The First Class (Nerve symptoms). Pelvic pains not specially localized; sacral pain; pain of special pelvic organs; pains beginning in the pelvis and radiating to other parts of the body.

Second Class.—Derangements of function; state of the functions; deranged menstruation; sterility; abnormal discharges; deranged function of the bladder and rectum.

Third Class.—Aggravation of any or all the above named symptoms, by standing, walking, or any other muscular exercise.

Keeping this classification in mind will suggest questions, the answers to which will determine the presence or absence of these symptoms. You should know the symptoms which belong to a given case, and then ascertain if they are present by asking the patient questions. You will more surely obtain correct testimony in that way than to depend upon voluntary statements made by the person examined.

The following will aid you in understanding the way to detect the symptoms referred to in the three classes given above. First ask if the patient has pain and where it is located. Ascertain also if this is pain connected with any of the functions of the pelvic organs. Then obtain the history of the functions of the sexual organs, in the past and present. These facts can be obtained from the patient herself, aided, perhaps, by some one who knows her well. Some practice is necessary to give skill in taking testimony, the value of which depends largely upon the physician's

ability to make the patient answer his questions correctly. Such questions as the following regarding the menstrual function should be asked. At what age was the menstrual function first established? At what periods of time has it recurred? How long does it continue each time? What is the quantity and character of the flow?

Is it attended with pain, and if so, where is the pain located, and the time it occurs in relation to the menstrual flow? Has menstruation always been attended with pain, or only for a limited period in the history of that function? And, finally, is menstruation attended with derangements of any of the other functions of the body?

From the answers to these questions two points can be decided. First. Whether menstruation has been performed normally during the whole, or part of the patient's menstrual period of life, and Secondly. If any derangement of that function exists, whether it be in character, recurrence, duration or quantity.

Next in order comes the history of reproduction. Has the patient had children, and if so, how many and when? Has she miscarried? If she has, at what period of gestation, and at what time in relation to birth of living children if she has had any? Was there anything abnormal in her pregnancies, confinement, or recovery from labor; if so, what? The answers to these questions will show whether the present conditions date back to some of the diseases or accidents of pregnancy or parturition. If the history so far obtained indicates any disease or functional derangement of the sexual organs, and there is any accompanying affection of the general system, the question arises, regarding the relations which they sustain to each other. That question can frequently be settled by ascertaining which of the two affections, the local or general, appeared first. The one which precedes is frequently the cause of that which follows.

Thus far we have been dealing with symptoms which, as a rule, only reveal derangements of function. They are only expressions of disease, and do not in all cases indicate the conditions of the organization which cause the derangement of function. This brings us to the final division of our subject, viz: Physical signs of disease. These are the physical evidences of changes of structure. There are exceptions to this rule, but they are few in number, and therefore, may be omitted in our general consideration of this subject.

The changes of structure and organization of the sexual organs which are expressed by physical signs are as follows:—

Changes of position, form, size, consistence, composition, color or appearance.

The means of observing physical signs, are by the touch, single or bimanual; speculum, sound and curette, percussion, palpation, exploring needle, uterine dilators.

The art of employing these means, and the significance of the signs obtained thereby, can only be taught by actual cases presented in the clinic for diagnosis.

Hospital Reports.

BELLEVUE HOSPITAL, NEW YORK.

CLINIC OF AUSTIN FLINT, M.D.,

Professor of Principles and Practice of Medicine in Bellevue Hospital Medical College, New York.

Carcinoma of the Peritoneum and Pleura(?).

Gentlemen:—The record of this case reads as follows: The patient is a woman, fifty-four years of age, who was admitted to the hospital on the third of this month. She has been a hard-working woman, obliged to support herself by scrubbing, etc.; she has never been in the habit of taking stimulants; the general health good; has been troubled with hemorrhoids and constipation; about two months ago she noticed that her abdomen was beginning to become enlarged, and this enlargement rapidly increased until she was unable to be up and work. She consulted a physician, who drew off about two gallons of fluid from her abdominal cavity, after which he was able to feel a tumor. The abdomen refilled with fluid and became largely distended; her appetite failed, and she has been losing strength for some time. There has been no vomiting; no swelling of the feet or of the face; no cough; there has been shortness of breath; no pain; she is pale, but well nourished; she came into the hospital on account of the abdominal enlargement.

On inspection we see a peculiar bulging of the upper part of the sternum, probably congenital. The percussion note in the left infra clavicular region is vesiculo-tympanitic; the respiratory and voice sounds are exaggerated. Below, we have all the signs of fluid in the left pleural cavity, rising as high as the level of the fifth dorsal vertebra.

The abdomen is noticed to be considerably enlarged, and there seems to be a slight bulging at the level of the umbilicus. Palpation shows that the abdominal wall is not very thick, not tense, but soft and yielding, and that fluid is present in considerable quantity. There is bulging just to the left of the umbilicus, due to the presence of a hard mass, which is somewhat movable under the hand. There is a second tumor, not quite as large as the first, in the right iliac region, which is also movable, and apparently is not attached to any of the pelvic viscera. Both tumors are firm and resistant, and do not feel like fecal masses. It is always a question, when we find tumors here, whether they may not be due to accumulation of hard, fecal masses in some portion of the

colon. This subject we will soon consider in the didactic course.

Above the level of the fluid there is tympanites. Dullness and tympanites change with the change in position of the patient. On auscultation, a rubbing friction sound is heard as the tumor is moved.

The heart is somewhat displaced to the right. The urine presents no evidence of disease of the kidneys.

The patient has been put upon tonic treatment and good diet.

It is noted that on the fourth, when fluid was withdrawn from the pleural cavity, it contained red globules and budding cells. These signs are to be regarded as diagnostic of carcinomatous disease. As a rule, when we withdraw liquid from the chest, and it contains a little blood which cannot be accounted for by the puncture made, it may be taken as proof, though not absolute, that there is either phthisis or carcinomatous disease.

On the eleventh it is recorded that the patient is now quite comfortable, but at times, however, she is troubled with shortness of breath. The bowels are constipated, but always respond to laxatives. The appetite has not been good; occasionally vomited during the last three days; the abdomen to-day is larger than at the beginning, the enlargement being apparently due to tympanites. The percussion note is tympanitic over the whole of the abdomen, and no evidence of fluid is obtained. On introducing the hypodermic needle failed to get any fluid.

Another specimen of fluid was withdrawn from the left pleural cavity, and submitted to Dr. Welch for microscopical examination. He reports that "the fluid contains a large number of red blood corpuscles, a few pus cells, and a considerable number of oval or round cells, two or four times the size of red blood corpuscles. These large cells occur singly and in groups. They often present the appearance of so-called budding cells, one cell, as it were, springing out of another. The size of these cells, and their occurrence in groups, and as budding cells, renders probable the diagnosis of carcinomatous disease of the affected serous membrane."

Such is Dr. Welch's report, and it is with reference to the diagnosis of carcinoma of the pleura that I wish specially to present the case to you to-day. You will remember that at a previous clinic I gave the details of a case in private practice, in which there was hydro-peritoneum, and at that time no evidence, on palpation, of carcinomatous disease could be ascertained, but it was suspected, and for the same reason that we should suspect it in this case if we had not found a tumor, namely, absence of the ordinary causes of hydroperitoneum. There were no evidences of disease of the liver. The habits of the patient, so far as we could judge (and I think we could judge correctly), would exclude the probability of cirrhosis. There was no evidence that the dropsy of the abdomen was preceded by peritonitis, at least, of any degree of acuteness; nor was there anything preceding the ascites to denote renal inflammation.

Here, then, we have an instance, assuming our diagnosis to be correct, of pleurisy dependent upon carcinomatous disease occurring in the chest. There is considerable fluid in the chest, but it has not yet embarrassed the respiration seriously, even though associated, as it is, with tympanites and a certain amount of liquid in the peritoneal cavity. But if at any time further accumulation of liquid in either of the two cavities should render the respiration very difficult, it will be proper to remove some of the liquid by aspiration. At present, however, the two indications evidently are to sustain and invigorate the patient by tonic remedies and by good, nutritious diet.

Bronchitis.

I may state, gentlemen, that the case, which I presented to you at a former clinic, of bronchitis affecting the smaller sized tubes (though not extending sufficiently, perhaps, to constitute capillary bronchitis), associated with collapse of the lobules or lobular pneumonia, has been improving progressively, and the patient is now in a comfortable condition. The physical signs which denoted circumscribed solidification of the lung have, as I learn, disappeared. You may also recollect the patient presented some time ago, who had anæmia and functional disturbance of the heart, and was confined to the bed. She is now able to assist the nurse about the wards.

Bright's Disease.

I will now present you two patients with chronic Bright's disease of the kidneys. I have not during this session been able to present you cases well illustrating all the varieties of this disease. Besides the general division into acute and chronic renal disease, we have different kinds of the chronic form, and among these, I may mention, first, the large white kidney, combined often with the waxy, which presents a certain group of symptoms. I do not think I have yet been able to show you a good typical case of this variety; that is, a patient with a large amount of anasarca, marked pallor of countenance, the urine loaded with albumen, and so on. The acute form of Bright's disease, when it becomes chronic, presents this variety; it also follows scarlet fever, and exposure with intoxication.

Then there is the waxy form of kidney, the diagnosis of which we can form from the antecedent history—prolonged suppuration from some part of the body, disease of the bones, syphilis, sometimes phthisis; and sometimes there is evidence of waxy disease affecting other organs, as the liver, the spleen, and sometimes the intestines. The anasarca in this variety is considerably less than in the former, sometimes it is entirely wanting: the progress of the affection also is frequently very slow, the urine is abundant, of low specific gravity, and contains a small amount of albumen and hyaline casts. These are points involved in the diagnosis.

The other variety is the fibroid, the cirrhotic or contracted kidney, and it has so happened that our cases, so far, have been in illustration of this form. This form is of special interest in this respect, that is often overlooked, the ordinary symptoms and signs of Bright's disease, perhaps, being wanting for a good while, the first evidence being, perhaps, the sudden development of some important sequelæ, or complication. There may be entire

absence of general dropsy; examination of the urine may show only a trace of albumen, or none whatever; and if we are content with a cursory examination of the urine, we may reach the erroneous conclusion that there is nothing in it denoting this disease. This happens over and over again, the examination of the urine not being sufficiently minute. The quantity should be well ascertained. The specific gravity should never be overlooked, and the examination by the microscope in these cases is often of considerable importance.

With regard to the usual complications of this form of Bright's disease, they belong among the uræmic manifestations, and are supposed to be due to retention in the blood of urea. It is a question, however, whether other principles are not also retained, or whether it is the urea alone which causes the toxical effects. However that may be, it is in consequence of the retention in the blood of matters which should be eliminated, that we have the manifestations of uræmia. Of these symptoms I make this division, namely, into the minor and graver, and I think it is a practical and useful one. The minor manifestations are very important to us in practice, as leading us to suspect, in given cases, the existence of Bright's disease. They are, pain in the head. or cephalalgia, nausea, vomiting, diarrhœa not otherwise explained, impaired vision. Over and over again patients have gone to the oculist for disease of the eye, and on examination, the oculist, knowing about the dependence of disturbed vision upon disease of the kidney, in certain cases, has made the diagnosis of Bright's disease. Cramps in the limbs may be mentioned in this connection.

Now and then the graver manifestations of uræmia are the first to attract attention—coma, convulsions, sometimes occurring suddenly, sometimes not. The minor usually precede the graver manifestations, but not always. Bear in mind that fact. Now and then a patient may appear in his usual health, be about his affairs, when suddenly he drops down in the street, unconscious, in a state of coma, sometimes with convulsions.

Now, when we examine a patient, and find these minor uræmic manifestations present, it is important for us not to overlook their possible or probable significance. I want to make one practical remark here with regard to the examination of the urine. In all cases in which there is any ground whatever for suspecting renal trouble, examine the urine, and examine it with care. I have come more and more to consider it important, in all doubtful cases, to have a sufficiently careful examination of the urine made, either to determine the probable existence of renal disease or to exclude it.

Besides coma and convulsions, there are pericarditis, pleurisy, œdema of the glottis, œdema of the lungs, dyspnœa which is apparently toxical, we being unable to refer it to any appreciable morbid condition of the lungs, and, therefore led to infer that it proceeds from the action of toxical principles in the blood upon that portion of the nervous centre which presides over the respiratory tract. We meet with cases of this sort which are referred to uræmia. Such are the more important of the graver manifestations.

The two patients which I present to-day, gentlemen, happen to be cases illustrating the sudden occurrence of grave uræmic manifestations. That is, assuming the condition of the second patient to be that of Bright's disease and uræmic poisoning.

This patient, a woman, forty six years of age, was presented to you on a former occasion, when I read her history. You will remember that she came from out of town to the city, and here became suddenly unconscious, and was brought to the hospital in that condition. There has been no œdema of the limbs, but examination of the urine showed the existence of renal disease. There has been considerable mental disturbance since her entrance into the hospital. There has been delirium, which is not a very frequent complication of renal disease, but sometimes it is, and is sometimes a very important symptom or complication. I have known violent mania to occur in connection with this variety of Bright's disease. From the time she was presented before until about a month since this case was progressing very well; nothing of any particular importance occurred; but since that time the points are of interest, and I will read the record. She has been passing from fifty to seventy ounces of urine daily, but on the 4th the amount dropped to 34 ounces, and during the night she vomited and complained of nausea. Note the connection between these gastric symptoms and the very considerable and sudden diminution in the quantity of urine eliminated. The next day she still had a good deal of nausea and some vomiting. Bicarbonate of soda in water was given, but it seemed to increase the nausea instead of relieving it. I suppose the alkali was given to diminish the effect of the eliminative matters upon the mucous membrane of the stomach. You will remember that in a former case there occurred almost complete suppression of the urine, and the gastric symptoms became greatly aggravated.

On the 5th the amount of urine passed was 28 ounces; nausea and vomiting continued, and there was dizziness, spots before the eyes, and headache. You will notice the appearance of minor manifestations of uræmia occurring after her admission to the hospital: before that there being none; the first symptom of renal disease showing itself in unconsciousness

She has been taking the infusion of digitalis three times a day, and later every three hours. There is still no œdema in any part of the body. A tenth of a grain of elaterium was given, and again repeated, but it had no effect. This, I am sorry to say, is frequently the case with this drug, that it is variable in its strength, and we are liable to get negative results. Infusion of digitalis, liquor ammonia, and spirits of nitre were then given, and during the day 27 ounces of urine were passed. She was then given a mixture which contained jaborandi, and this had the effect of producing diaphoresis. You are aware that one of the means of eliminating urea vicariously is by the skin, and measures to accomplish this are important. We can use various external methods to produce sweating, but jaborandi is a remedy which sometimes has a remarkable effect in that

direction. As far as my experience goes, however, its good effects in cases like this have not been fully met. Notwithstanding she perspired freely, the symptoms were not much relieved. On the 9th the compound jalap powder was given, but it did not move the bowels. I have often found that this, in some cases very efficient hydragogue cathartic, the pulvis purgans, fails to act, so that I have hesitated to employ it in urgent cases, cases in which it is very important to have drugs that can be relied upon. At 9 P. M. on the 9th the mixture of digitalis was stopped, and one-tenth of a grain of elaterium was administered. At 12 P. M. the specific gravity of the urine was 1.016, and she passed only 10 ounces; but the amount was not very accurately measured. On the 10th she had several very large movements of the bowels, the elaterium seeming to have taken effect. A solution of morphine was administered hypodermically, to relieve pain, and she received a stimulant. During the past twenty-four hours she passed 46 ounces of urine; free from nausea and dizziness. During the next twenty-four hours the amount of urine passed was 28 ounces, of a specific gravity of 1.010; contained no albumen.

The points of instruction in this case, gentlemen, are these: Here is a patient who was admitted into the hospital, having been suddenly attacked, without any known previous symptoms pointing to any important disease, with coma and convulsions. Examination of the urine showed unmistakably disease of the kidneys, and of that variety of chronic Bright's disease known under the several names of small, contracted, cirrhotic, fibroid, gouty kidney. She improved in the hospital, until suddenly, without any apparent reason, the urine dropped down from an increase in quantity to a smaller quantity, and coincident with this we had minor manifestations of uræmia, especially nausea and vomiting. Then the object of the treatment was to forestall the occurrence of the common and graver manifestations of Bright's disease.

Now, that is the problem which is presented to us frequently in practice, and in order that we may do that, it is important for us to ascertain, by proper examination, the fact of the existence of this form of Bright's disease. You see difficulties exemplified in this case which we meet with in practice. The stomach was not very tolerant of remedies. Elaterium was employed, but at first seemed to be ineffectual. Pulvis purgans, and other hydragogues, either from defect in the drug itself, or from some condition of the patient, proved unsuccessful in this case. Finally elaterium was repeated, and it then proved successful, copious watery discharges being produced, and then the minor symptoms which we had a right to conclude might foreshadow graver ones were temporarily removed; so far, then, this case affords us instruction, and its subsequent course may develop other points which may be interesting and useful for us to consider.

The other patient whom I shall present to you was also taken suddenly with coma and brought to the hospital in that condition. The urine gave some evidence, not much, of renal disease. It was found to be very small in quantity, and it was then concluded that the coma, and also convulsions which she had, were due probably to uræmia. She improved, but after a time the urine again became greatly diminished in quantity, approaching even to suppression, and there came on intense gastric irritation, and you will remember that I presented that patient to you a second time with reference to that complication of renal trouble. The stomach was intolerant of everything, and it was necessary to sustain the patient by rectal alimentation for some time.

Now, the problem in this case was, had we sufficient evidence on which to make a diagnosis of disease of the kidneys. The evidence was rather small; I mean evidence afforded by examination of the urine. There was sometimes found, but by no means constantly, traces of albumen, and two or three casts were also found. These facts, together with that of almost total suppression of urine, led me to suppose that this was a case of uræmic convulsions, probably due to renal disease.

It is noted that on the 3d instant the patient feels more comfortable; the stomach retained beef juice and milk; 17 ounces of urine, specific gravity 1.026, amber colored, acid, contains no albumen. Although the amount of urine passed was small, you will notice that the specific gravity was high, and this is an important fact. The quantity of the urine and its specific gravity should always be considered together.

On the 4th she felt well, passed 26 ounces of urine, amber colored, turbid, specific gravity 1.020, acid, no albumen. Notice that with this increase in the quantity of urine the stomach is able to retain liquids. On the 8th it is noted that she has been steadily improving, the quantity of urine increasing, being on the 6th 45, on the 7th 25, the 8th 32, on the 9th 40, and on the 10th 60 ounces. It contains no albumen; specific gravity about normal. She sits up all day, and feels well.

Such, gentlemen, are the facts in this case. Had the patient, before developing more plainly uræmic symptoms, come to you in private practice, it is altogether probable that on examining the urine and finding it to be, as it has been in this case, almost or quite free from albumen, you would say at once that there was no disease of the kidneys; yet you see the progress of this case has been such as to point, without much doubt, to the existence of renal disease. The occurrence of coma, along with the great diminution in the quantity of the urine, and the uræmic manifestations in connection with the digestive organs, make it difficult for us to conclude that the kidneys are free from lesion.

Medical Societies.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated meeting, May 4th, 1883. The President, Dr. E. L. Duer, in the chair.

Dr. Boardman Reed, of Atlantic City, New Jersey, remarked that the questions of most interest with regard to

Icterus Neonatorum

are its etiology and pathology, and its relations to

umbilical hemorrhage and purpura. As to the first of these points, we can arrive at satisfactory conclusions only after an extended series of autopsies, such as it is rarely or never the privilege of the physician in private practice to see. The wards of lying-in hospitals ought to afford the needed data to determine finally whether jaundice in the new-born originates in the liver or in the blood. A sufficient number of thorough post-mortem examinations do not seem to have yet been made to set this question at rest, hence, we find a variety of theories maintained.

The theory advanced in many of the older books is that the retained meconium forms an obstruction to the escape of the bile. This does not seem to have been confirmed by post-mortem examinations, and is improbable, from the fact that icterus usually does not develop in infants until several days after birth, and after there have been numerous fecal evacuations.

Some of the German authorities consider that icterus neonatorum is probably due to lowering of the blood pressure in the hepatic capillaries, in consequence of the cessation of the blood stream passing directly from the umbilical veins into the portal vein. This at first appears plausible, since experiments upon animals, conducted by Heidenhain and Lichtheim prove that lowering the blood pressure in the liver, as by starvation, or by establishing a biliary fistule. may cause all the phenomena of jaundice. But as this change in the circulation must take place in every infant immediately after birth, we should expect jaundice to be universal in the new-born, and to come on always within a day or two after birth; whereas, it affects a very small proportion of the whole number of children born, and is generally developed between the third and tenth days.

It seems more probable to me that jaundice in the new-born (excluding the transient yellowish discoloration due to the natural fading of the rosy color first seen in healthy infants) may arise from at least two wholly different causes, and is, therefore, divisible into two classes, one obstructive or hepatogenous, and the other of hemic origin or hematogenous. The first we have reason to believe originates most frequently, as in adults, from a catarrh of the duodenum or bile ducts, which we might expect, *à priori*, to result during the first week of life, from the ablutions to which many infants are subjected under circumstances that render the taking of cold almost unavoidable before a tolerance has become established.

That exposure to cold is one frequent factor in producing the disease, is well known. It is recorded by West that in the Dublin Lying-in Hospital, where the hygienic conditions are excellent, infantile jaundice is very rare; while in the Foundling Hospital, at Paris, few infants escape it; nearly all the abandoned little waifs being exposed to cold before admission.

It is doubtless true that jaundice dependent upon persistent obstruction, occlusion, or congenital absence of the bile ducts, instances of which have been observed in infants, may go on to the production of profound blood changes and be complicated with hemorrhage as a consequence, from the umbilicus or mucous surface; but I am disposed to maintain that many of the grave cases associated with such hemorrhages are of hemic origin. The reasons for this view are (1) The constantly observed fact that the most intense forms of obstructive infantile jaundice are often accompanied by light stools and high-colored urine, and yet unaccompanied by any tendency to hemorrhage. Several of my cases exemplify this fact, and notably, the one hereinafter reported, of a child born with measles and shortly afterward developing jaundice. Every practitioner must see many cases of severe, yet uncomplicated jaundice. On the other hand, persistent and fatal hemorrhage now and then occurs in cases where the jaundice is only slight. Many such are on record; nor can it be assumed that the connection is only accidental, as the statistics, to be cited further on, abundantly establish a causal relation between jaundice and hemorrhage. (2) The fact that these hemorrhagic cases associated with slight jaundice do not usually present any marked evidence of obstruction to the flow of bile; such as constipation, white stools, etc. (3) The fact that they occur frequently under conditions, such as immaturity and feebleness at time of birth, which have no obvious connection with hepatic obstruction, but are most likely to be dependent upon an inheritance of poor blood from the maternal system, or of digestive and assimilative powers so weak that the elaboration of healthy blood by the infant organism is impossible.

These reasons, I submit, render still tenable the theory that infantile jaundice may have other than a hepatic origin.

The relations of icterus neonatorum with the hemorrhagic condition manifested most often by bleeding from the umbilicus is a subject of much interest and practical importance, concerning which the profession is in need of more exact information. That there is often a dependence one upon the other is certain. Among two hundred cases of spontaneous umbilical hemorrhage which have been reported, including two of my own, jaundice was observed in seventy. It probably existed in a slight degree in a much larger proportion, not being considered of sufficient importance to report; but even the above recorded ratio of more than one in three is sufficient to prove a causal relation, since in any unselected two hundred births we should not expect to have more than ten or fifteen cases of jaundice, instead of the enormous number of seventy.

Spontaneous umbilical hemorrhage is so rare that many physicians of extensive experience have never seen it. West, in the first edition, gives a better description of it than most recent writers on diseases of children. He emphasized particularly the fact that it may depend upon a grave form of jaundice, but states that he had never met with a case of it.

This complication being so rare, I shall not apologize for briefly summarizing here a report of an interesting case of it, seen two and a half years ago, in Atlantic City.

Case 1.—A female child, born two weeks, at least, before term; weight about six pounds. The mother had suffered at times, for years, from anæmia, palpitation of the heart and various hysterical symptoms. During the pregnancy she

had nausea almost constantly, due to disease of the cervix. Vomiting was so severe and frequent toward the close of the period that her health was greatly impaired by it. I was on the point of applying nitrate of silver to the cervix when, after a number of uterine hemorrhages, extending over a week, labor came on and the child was speedily born. The father was even more delicate than the mother, having chronic dyspepsia, periodical sick headache and nervous exhaustion.

After the delivery the cord was secured with a double ligature, and there was nothing abnormal until the fourth day, when the compress over the umbilicus was found saturated with blood, which oozed from all parts of the softening funis. Numerous powerful styptics were applied, with only temporary good results, the bleeding, though checked for a time, always recurring after the lapse of a few hours. Dr. W. H. Bennett was called in consultation, and the day after the hemorrhage began hare-lip-pins were inserted through the tissues beneath the umbilicus, and the mass ligated. This greatly diminished the bleeding, and the following day the ligatures were tightened, with the effect of finally stopping it. Ergot and tincture of the chloride of iron were administered in very small doses, with a view to modifying the hemorrhagic diathesis which evidently existed. Before the hemorrhage was controlled spots of purpura appeared on the forehead and other parts, jaundice developed shortly after the bleeding began and became marked enough to be noteworthy, but was at no time intense; the stools continued unchanged in appearance, with a tendency to diarrhœa rather than to constipation. The mother having no milk, the child was fed artificially from birth. Shortly after the hemorrhage ceased a volunteer wet-nurse suckled the child for several days, with manifest advantage. When artificial feeding was resumed diarrhœa set in and became troublesome; appropriate treatment and a change from cow's to condensed milk checked the bowels, but the child failed steadily, nutrition evidently being irreparably damaged, and some icterus persisted until the seventeenth day, when it died. No autopsy was permitted.

As an interesting supplement to this report, I may add that a few months ago another child was born to the same parents, and has the following history: It was a male, and somewhat larger at birth than its predecessor. On the second day there was some oozing from the funis, in spite of two ligatures most carefully applied, but this was so readily controlled that it would scarcely have received a second thought, except for the serious hemorrhage in the previous child. As showing the feeble and neurotic constitution bequeathed to these children, it may be mentioned that this infant had a convulsion on the second day after birth, and has had similar seizures at frequent intervals since. It has shown no jaundice at any time.

As a striking example of hepatogenous jaundice in the new-born, the following report is introduced:—

Case 2.—The mother, while pregnant, contracted measles in a severe form; the rash, after being out well, retroceded; pneumonia then developed and she then aborted, some two or three weeks before term. The child, which was of fair size, weighing upward of seven pounds, was covered with a faint rash at time of birth, and within a day or two presented the usual symptoms of the exanthem, including the catarrh, though the fever was slight. By the fourth day its skin began to turn yellow, and there was rapidly developed a very intense form of jaundice, the color, at one time, becoming almost olive green. There was constipation, with one hard, white, putty-like stool daily, urine high-colored, staining the napkins. The liver seemed abnormally small; the region of dullness on percussion measuring about one and a half inches in the mammary, and one inch in the axillary lines. The child was fed first with diluted cow's milk and later with condensed milk. I saw the case on the ninth day from birth. Jaundice was then very marked, the hue being of a greenish yellow; but there had been no hemorrhage, either from the umbilicus or any other part. The child manifesting considerable appetite, apparently fair digestion, I ventured the opinion that it might possibly survive, though an unfavorable prognosis had previously been given. It recovered gradually from the jaundice, which lasted in all some twelve days, but has since suffered severely from indigestion and is not thriving well.

Careful microscopical examinations of the blood taken from a large number of infants affected with icterus in its various forms would shed much light upon the subject; but I cannot learn that any systematic observations of the kind have been made. I regret that such an examination was not made in any of my cases; an omission to be expected of a busy physician in private practice, but one which our friends the internes in the lying-in wards of the hospitals ought not to make, amply supplied, as they usually are, with all the necessary appliances, and with authority to institute any necessary scientific investigations.

Dr. Henry Beates, Jr., Physician to the Sheltering Arms Hospital, Philadelphia, has kindly furnished me with the following notes of cases recently seen by him:—

"Having in my ward a large, plump, finely developed infant, presenting the characteristic manifestations of the so call icterus neonatorum, I submitted a drop of its blood to microscopical examination.

"The tendency to the formation of rouleaux was characteristically healthy. The corpuscles have the normal relationship of white to red. The only noticeable feature constituting what might be considered an etiological factor of this affection is a greater number of disentegrated red corpuscles and free protoplasmic nuclei. These, however, were very slightly in excess of that commonly seen under ordinary circumstances, and not sufficient, in my mind, to satisfactorily account for the intensity of the discoloration. Other symptoms of jaundice, like involvement of conjunctivæ, pigmentary discolorations by the urine, light stools, etc., were, and are positively negative. I desire to especially direct attention to the fact that this infant is well nourished and plump.

"Another case, in fact, two, presenting the same phenomena, and under the same conditions

of good nourishment, I might say plethora, have occurred recently in private practice.

"Another child in my ward, when a little less than eight days old, also presented the phenomena of icterus, but mark the contrast. The child was small, thin, and poorly nourished; its expression was one of suffering; its bottle was not eagerly sought, and vomiting frequently occurred. The bowels were constipated, and presented the peculiar clay-colored stool, and the urine stained every thing with the characteristic yellow; the conjunctivæ were also involved. After a period of two or three weeks the icterus had faded and the child is now thriving well. This is an instance of true jaundice (catarrhal) and presents features affording an opportunity of comparison with the discoloration of cutaneous hyperæmia seen almost as frequently as we see what might be termed plethoric babies."

Dr. Julius Kammerer, of Philadelphia, having spoken to me of some remarkable cases of icterus, I asked him to summarize his experience in a note, which is here appended.

"There have been cases under my observation, where the jaundice of children coincided with and was dependent on an ulceration and noncicatrized state of the navel. This cause of jaundice was so clearly demonstrated that in the autopsy of fatal cases there were found phlebitis of the umbilical vessels, extending sometimes to the portal vein, and even small abscesses in the parenchyma of the liver. In every case of icterus of the new-born, I have made it a rule to examine the navel, looking for signs of inflammation or ulceration, as the prognosis, in case of their existence, would be less favorable than in cases of catarrh or mechanical obstruction of the biliary ducts. I have seen some of these cases end fatally by spread of the inflammation to the umbilical veins or by a putrid condition of the blood subsequent to the absorption of purulent and putrid matter."

These observations of Dr. Kammerer's were partially made at the Paris Foundling Hospital, during his studies in that city, and seem to me highly important. His note was not received until after the completion of this paper, and on the eve of this meeting, else the views it embodies would have received full consideration in that portion of this paper devoted to the discussion of the etiology of infantile jaundice. It is confirmatory of my opinion that such discoloration may be hematogenous and often associated with disease of the umbilicus.

I have notes of many other cases of simple jaundice in young infants, but they would exemplify nothing more than is shown by the foregoing reports. As already intimated, the subject needs further investigation, but clinical study simply will not afford the light required. The revelations of the dead-house and the microscope, carefully and scientifically observed, can alone determine positively the points in dispute.

COLLEGE OF PHYSICIANS.

Dr. Geo. C. Harlan, Surgeon to Wills Eye Hospital and the Eye and Ear Department of the Pennsylvania Hospital, read a paper before the College of Physicians of Philadelphia, April 5th, 1882, entitled

Two Cases of Congenital Irideremia, with Lamellar Cataract in one and Dislocated Cataractous Lenses in the other.

Case 1.—N. J. M., aged 12 years, says that he knows of no defect in the eyes of any other member of his family in this or preceding generations, except that his mother is "short-sighted." He is of medium size, and, except his eyes, well developed.

His vision is $\frac{8}{cc}$ and is not improved by glasses or the stenopaic hole. There is no photophobia, and he sees better in a bright light than in a subdued one. The corneæ are clear, but perhaps very slightly below the normal size, though a constant and decided nystagmus makes it impossible to measure them accurately. The eyes are free from irritation, and their tension is normal. There is not a vestige of iris in either eye. There is well marked lamellar cataract in both eyes. In each lens there are two opaque layers with clear lens matter intervening between them, beautifully seen by oblique illumination. Only occasional and partial glimpses of the fundus can be obtained, but the choroid seems normal. There is not sufficient vision for any satisfactory test of the accommodation.

Case 2.—I. B , a well-grown boy of 13 years; has rather prominent eyes, with full-sized corneæ and normal tension, but the iris is entirely absent in both. In the right eye the cornea is quite clear, and though there are floating opacities in the vitreous, the details of the fundus can be seen fairly well. The lens, which is of normal size, is opaque and white, and is dislocated upward, so that only about its lower half is seen beneath the corneo-sclerotic junction. The ophthalmoscope shows a hypermetropia of $\frac{1}{8}$, which, assuming $+\frac{1}{4}$ to represent the loss of refractive power induced by aphakia in the emmetropic eye, indicates a structure of the ball corresponding to a myopia of $\frac{1}{12}$. The choroid and retina appear normal in structure, but the optic disk is atrophied and greatly distorted, the vertical diameter being twice that of the horizontal, and the retinal vessels crowded to its inner edge; vision is only quantitative. There is no nystagmus.

In the left eye there is a diffused haziness of the cornea, which, together with a greater opacity of the vitreous than in the other eye, makes the details of the fundus invisible. The lens, which presents the same form of cataract as that in the right eye, is still further out of position, and only a narrow edge of its periphery extends below the margin of the sclerotic. The lenses seem to be held in their unnatural position by some attachment of their upper margins, while the lower are free, and they swing backward and forward, as if on hinges, with the movements of the balls. In the left eye the lens has caused an absorption of the tissues against which it rests until the choroid has disappeared from above it and the sclerotic is very much thinned and slightly staphylomatous. When the cone of light concentrated by a convex glass is thrown upon it from below, the outlines of the lens become distinctly visible through the sclerotic.

Though irideremia (iris, and eremia, absence),

or aniridia, is an extremely interesting anatomical curiosity, it can scarcely be said, in the present state of our knowledge, to teach any useful lesson in embryology or pathology. Numerous hypotheses have been suggested to account for its occurrence, but most of them are more fanciful than philosophical, and perhaps none of them are more rational than that maintained long ago by Von Ammon, who, in view of the late appearance of the iris, after the choroid is fully formed, considered its absence as simply the result of an arrest of development of the uveal tract. It is a curious fact that this anomaly is almost invariably symmetrical. According to Manz (Handbuch, Augenheilkunde II, p. 90), but one case has been reported in which it occurred in one eye only. Another point of interest in the history of this defect is its decided tendency to hereditary transmission. A number of cases of inheritance have been reported; one (quoted from Von Ammon by Lawrence) in which one member of the first generation was affected, three of the second, and five of the third.

The fact that cataract is very generally associated with irideremia, has given some support to a suggestion that the iris is concerned in the nourishment of the lens; and to an ingenious theory of the causation of irideremia which supposes that the iris has been crowded out, as it were, by the lens remaining too long and too closely in contact with the cornea during embryonic life. This coincidence of cataract with irideremia is, however, not constant, as cases are recorded in which the lens was transparent. One is reported by Dr. Reuling (*Amer. Journ. Med. Sci.*, January, 1875), in which vision was sufficiently acute to enable the observer to determine that the power of accommodation was unimpaired.

The normal intraocular tension found in cases of iridermia has been adduced to prove that the aqueous humor is not secreted by the iris, but chiefly, if not entirely, by the ciliary processes. In the rabbit the ciliary processes are connected with the iris, and when both are removed, the eye becomes very soft and the aqueous humor is never regenerated (Deutschman, *Grafe Arch.*, v. 26, No. 3). This, so far as it goes, gives support to the advocates of sclerotomy, instead of iridectomy, in glaucoma.

Partial congenital luxations of the lens are usually upward, as in Case 2, and frequently occur without defect of the iris. In the left eye of this patient the lens is so far out of place that it would be entirely concealed if the iris were present, and this case might then be readily mistaken for one of the very rare anomalies of congenital aphakia.

PHILADELPHIA LARYNGOLOGICAL SOCIETY.

Stated meeting, held Friday, February 24th, 1882, at the office of Dr. Bean, 1431 Walnut street, Dr. Harrison Allen in the chair.

Dr. McCracken exhibited a case of tumor of larynx, in a patient, aged 58 years. There were two; one attached to under surface of left vocal cord, and the other at the anterior angle below the cords.

Dr. Bean read a paper on "A Case of Paralysis of the Left Vocal Cord in Adduction Due to Anuerism of the Arch of the Aorta."

During the discussion which followed, Dr. Potsdamer gave a short history of a case of paralysis of right vocal cord, due to pressure of an anuerism of the innominate; the tumor in this case could be seen bulging into the trachea. The patient died from rupture of the walls at this point.

Dr. Sajous related the history of a case of "Vibratory Elongation of the Uvula," where touching of the uvula at any point caused it to move to the opposite side, and to curl upon itself, *i. e.*, if touched on the anterior surface the uvula moved backward, and describing a semicircle, folded itself on to the posterior surface of the soft palate. This peculiar condition had frustrated many attempts to amputate it.

EDITORIAL DEPARTMENT.

PERISCOPE.

On the Treatment of Stricture by Stretching.

Reginald Harrison, F.R.C.S., Surgeon to the Liverpool Royal Infirmary, says, in the *British Medical Journal*:—

If we put aside cases of organic stricture of the urethra which are remedied by the occasional passing of a bougie, there yet remain a certain proportion where such treatment is insufficient. To take an example: a patient having neglected the early indications of stricture, is seized with retention; with difficulty a small catheter is passed, and thus the urgency of his symptoms are met. It often happens that retention recurs, and all the difficulties attendant upon the first catheterism have to be gone over again, with, probably, considerably more spasm superadded. To meet such cases, immediately or remotely, a variety of expedients are practiced. Of these, I may mention continuous dilatation, or the tying of an instrument into the bladder; internal urethrotomy; perineal section; and rupture, as employed by Holt. All these have for their object the passing of a full-sized instrument into the bladder, without which none of them can be regarded as satisfactorily completed.

For some time, I have occasionally been employing for this object a process which I think is best described under the term "stricture-stretching." In using this phrase I do not wish to be understood as advocating the use of either a new instrument, or new treatment. I merely desire to state how I have applied well-recognized principles with equally well known means. Stricture

stretching, as I endeavor to carry it out, is very closely in imitation of the process to which gloves are submitted by the salesman after the purchase has been made. Into each stall of the glove the glove-stretcher is introduced, in order that the fingers may the more readily pass in. If the manipulation be dexterously done, neither are the seams split nor is the kid torn; if clumsily, a rent and a false passage for the finger is the result.

So much for the simile, now for the reality. The stretcher I employ is that much abused but valuable instrument, Holt's dilator; and the stretching is effected quite slowly, by the introduction of successive sizes of dilating rods, until the dimensions required are obtained. All this is to be done at one time, with or without an anæsthetic, according to circumstances. I almost invariably have the patient placed under ether, as it is important that the process should be slow enough to permit of the tissues stretching without tearing. I do not think we fully recognize the extent to which the urethra is capable of being distended. Dr. Otis, of New York, has recently demonstrated the truth of Sir Everard Home's observation: "That the urethra is everywhere much larger than had been supposed, exceeding the size of the largest bougie in use, in a very great degree." And what is true of the healthy urethra will be found to apply, though in a less degree, to the strictured one.

The adaptations in Holt's dilator, specially fitting it for this purpose, may be briefly stated. In the first place, there is attached to it a pilot bougie, which, in cases of tight or tortuous strictures, will be found invaluable. Though the pilot bougie may not be necessary for all cases where stretching is to be employed, yet, as this treatment is intended for some of the worst forms of the affection, it is as well to be prepared for every contingency. If the pilot bougie be not required, a round-top screw takes its place. Then I have increased the number of dilating rods to eight, so that the process of stretching may be gradual; and, in order that there may be no jerking as the several rods are introduced, a spiral spring controls the separation of the two portions of the instrument, instead of a screw.

The size of the dilator, before a rod is introduced, is No. 3, English gauge; the largest dilating rod brings it up to rather over No. 12; so that between these two extremes we have seven gradations in size. If the stricture is so tight as not to be capable of receiving the dilator, dilatation by means of filiform bougies must first be employed until the required size is obtained. Other instruments, divulsors and screw dilators, as they are termed, have been invented for a similar purpose; but all I have seen are open to two objections: 1. They either tear or pinch with their sides the mucous lining of the urethra; 2. They are too large for use, except for strictures of the largest calibre. One of the best divulsors I know of is that adapted by Dr. Samuel Gross, of Philadelphia. It is provided with an index at the handle, which shows precisely the extent to which divulsion has been carried.

A word or two in reference to the use of the instrument I employ for stretching. The patient being placed under ether, in the recumbent position, the dilator, with or without the pilot bougie, is passed fairly into the bladder, and then the rods are slowly and gradually introduced until a full size is obtained. The process generally occupies from ten to thirty minutes, according to the resistance, care being taken not to tear, and so cause hemorrhage. I then withdraw the dilator, and pass a catheter, for the purpose of removing any urine that may be there. I usually give a dose of Fleming's tincture of aconite immediately after the stretching has been practiced, and require the patient to remain in the house for twenty-four hours. A full sized bougie is then passed every third or fourth day, until the patient has learned how to conduct this operation himself, when he must be enjoined to continue this practice.

It will be seen that this proceeding differs essentially from what is so well known as Holt's operation. In the one, the object to be attained is stretching; while in the latter it is rupture. It is the only plan of treatment by which the strictured urethra is at once brought up to a full capacity, without break of tissue.

In conclusion, I would remark that I am not recommending this as a panacea, or as prejudicing other proceedings to which reference has been made; but as a safe and efficient expedient for meeting immediate difficulties, and simplifying future treatment. If, in all cases of retention occurring with tight stricture, the use of this or a similar instrument followed the passing of the catheter, both patient and practitioner would be none the worse for the knowledge that, whatever spasm might temporarily do, at all events there was a way to the bladder which had been made without any structural detriment, capable of admitting a No. 12 bougie. The dilator, as adapted for this purpose, was shown by Messrs. Krohne and Sesemann, in the International Medical and Sanitary Exhibition.

Malignant Disease vs. Syphilis.

In the *British Medical Journal* Dr. Alexander Patterson, of Glasgow, says:—

"Every surgeon, I am sure, reads with pleasure and profit anything from the pen of Mr. Jonathan Hutchinson. In the *Journal*, of March 4th, he refers to the clinical differences in character of malignant disease, according to its seat. Referring to certain cases of cancer of the skin of the trunk, it is stated that, "In all, the ulceration progressed slowly during many years, caused but little pain, and produced no gland disease." Further on: "The disease of which I speak is most intractable, and, as far as I have observed, recurs immediately after removal." Reference is next made to an interesting case, in which Mr. Hutchinson twice removed the ulcer by the knife, and three or four times by caustic, but without benefit. "As soon as the sore was nearly healed it recurred."

May a provincial surgeon be permitted to give a case in many respects parallel? Some years ago, a man aged 45, suffering from epithelial cancer of the scrotum, sent for an eminent surgeon, for the purpose of having it removed. The operation was well performed. No one who saw the case had the slightest misgiving regarding

its nature, but, as a formal matter, the diseased structure was handed to a practiced microscopist in the neighborhood, who stated that it was epithelioma, without doubt. When nearly healed, it recurred, and was removed again, only to begin to spread when almost completely well. A third time it was taken away, with a like result. At the fourth operation, the testicle, which now appeared to be implicated superficially, was removed. When cicatrization was all but perfect, the surgeon left town for his holidays, and shortly afterward the patient's medical attendant requested me to perform the fifth operation, as the disease was spreading again. Having the history of the case before me, in a hopeless, half-hearted sort of way, I cleared away the diseased tissues as carefully and completely as possible with the knife, and watched the healing process with much interest. Matters progressed very favorably until the healing line was reached, when once more the ulceration began. Such conduct in a chimney-sweeper's cancer appeared to me unique. I saw that operating again was useless, and as I stood pondering at the bedside, my eye rested on the shining bald head of the patient. As a random shot, the question was put as to when his hair first came out. He said his hair began to fall soon after he joined the service, more than twenty years ago. The answer gave the clue. Iodide of potassium was prescribed, when the wound rapidly and perfectly healed, and has so remained.

Last year a lady, aged 60, came to consult me regarding an ulcer on the left side of the nose. She had been recommended by her medical attendant, whose card she brought, to see me regarding removal by operation. The sore, she said, began about two years ago, as a small scab or flattened wart, and continued to increase in size, slowly and without pain, since that time. The ulcer was now about five-eighths of an inch in length by half-an-inch in breadth, throwing out little discharge, and surrounded by an elevated, clear, glistening border. As she was accompanied by a friend, few questions were asked, and I simply stated that it might be prudent to defer operative interference in the meantime. The patient was given a prescription for tertiary syphilis, requested to use the medicine for six weeks, and then return. She did so, and the sore was completely healed. This was apparently a small rodent ulcer, with a syphilitic origin. We are, probably, yet far from thoroughly understanding the multifarious ramifications of syphilis.

Antiseptic Ligature of Arterial Trunks.

At a recent meeting of the Clinical Society of London, *British Medical Journal*, May 6th, 1882, Dr. Hector C. Cameron, of Glasgow, read notes of all the cases of antiseptic ligature of arteries in their continuity in which he had performed such an operation, whether for aneurism or for accidental wound. The material employed was antiseptic catgut (prepared by one or other of the methods suggested by Mr. Lister), of medium size, and tied in a reef-knot, with sufficient tightness to ensure division of the internal and middle coats of the vessel. Very accurate coaptation of the cutaneous margins of the wound was practiced by stitches of carbolized silk or silkworm gut, with an occasional stitch of thick silver wire, for purposes of relaxation, where that seemed desirable. Free drainage was effected by means of india-rubber drainage tubes in all the cases except one, in which a number of strands of carbolized catgut were employed. The operations, as well as the subsequent dressings, were conducted with rigid antiseptic precautions.

After describing the cases minutely, he said: In these five instances of aneurismal disease, six large arteries were ligatured. In each, complete and permanent occlusion of the vessel was obtained, without any constitutional or local disturbance, without any rise of temperature (if the case of diffuse popliteal aneurism during the first six days be excepted), and without the formation of a single drop of pus. In each case the last dressing was applied respectively on the fourteenth, tenth, eighth, eleventh and twelfth days after the operation; and in each, on the removal of that dressing, the wound was discovered to be thoroughly sound. On similar principles, the radial artery was ligatured four times, the ulnar artery twice, and the popliteal artery once, with equally satisfactory results. In the last case, however, the anterior part of the foot lost its vitality, and ultimately required amputation. The vein, as well as the artery, was injured by the wounding instrument.

Mr. R. Godlee said that in almost all these cases related by Dr. Cameron ligature of the artery was the only possible treatment. It seemed to him now that as treatment of aneurism by digital pressure, the tourniquet, Esmarch's bandages, flexion, etc., was usually very irksome and painful, it might possibly be well to treat all cases at the first by ligature with carbolized catgut, which, as now prepared, kept its hold of the vessel a sufficient length of time to ensure its occlusion.

The President said that Dr. Cameron's experience coincided with his own in so far as this, that the old-fashioned carbolized catgut fulfilled its purpose if properly prepared, and the treatment was thoroughly antiseptic, except in cases where a very long continued pressure of the vessel by the catgut was necessary. But the catgut should be as strong as silk, as soft as the normal tissues; it should be capable of retaining a knot on it with perfect security, and should be free from porosity, so as not to hold organisms in it, as did silk. But, however nearly perfect the ligature might be, there was no use in it unless perfect antiseptic treatment was also adopted, because, otherwise, the outer coat of the artery must die, and suppuration ensue. He believed this was the reason why Dr. Cameron's treatment was so universally successful, he having strongly insisted on the antiseptic treatment in its entirety.

Dr. Cameron, replying to Mr. Godlee, said that Esmarch's bandage had been first tried in the two cases of popliteal aneurism, but the agony was intolerable after some minutes, and each patient could endure no more. The ligature was then used with success. In two cases he had seen no benefit follow pressure, and his surgical colleague, going by his (Dr. Cameron's) experience, had then ligatured the femoral artery in Hunter's canal. When compression was tried, and the collateral circulation thereby established, one might find a second ligature even

necessary, as in one of these two cases, in which the artery was tied in Hunter's canal, when the ligature at the apex of Scarpa's triangle had failed. He believed that as the treatment by the ligature was so free from risk, it was better practice to adopt it at once than to try earlier treatment by these other methods, which were irksome, and interfered with the chances of successful treatment by ligature should it become necessary.

Tracheotomy.

The *Lancet*, April 26th, 1882, says:—

A case related by Dr. Felix Semon, at the last meeting of the Pathological Society of London, presents several points of great importance to physicians and surgeons. But the one to which we wish to direct attention is the fact it illustrates, that a double obstruction of the air passages may exist, and one of them be undetected and unrelieved by operation. In this case there was paralysis of the glottis-openers, and for this tracheotomy was performed, but failed to give relief; and it was subsequently found that a tumor was pressing upon the trachea below the opening in the tube. This tumor was so small that it could not be recognized during life. Other cases of a like nature have been met with, in which a tumor or aneurism has, by direct pressure, and also by implication of the recurrent laryngeal nerves, caused obstruction to respiration, and if an operation has been undertaken in accordance with the view that the laryngeal obstruction is the whole respiratory trouble, only disappointment has resulted. It is impossible in many cases to recognize this condition; the paralysis of the posterior crico-arytenoid muscles quite prevents inspection of the parts below, and in all cases the surgeon is warranted in operating, but should caution his patient that there may be some deeper obstruction to respiration than that which his operation is intended to overcome.

Reviews and Book Notices.

NOTES ON CURRENT MEDICAL LITERATURE.

——We have received a copy of the "Addresses at the Inauguration of William Pepper, M.D., as Provost of the University of Pennsylvania." This is a valuable pamphlet, containing, as it does, the history of a very important date in this old institution.

——"Higher Medical Education," a reprint from the Penn Monthly. This is the valedictory address delivered by Professor James Tyson, at the last commencement of the University of Pennsylvania. This address, containing the experience of the University of Pennsylvania in its struggle for higher medical education, and depicting in glowing terms its glorious triumph, is well worthy of perusal by all.

——We have received the Report of the Indiana State Board of Health. With this report we receive a copy of an address, read before the Mitchell (Ind.) District Medical Society, by Thad. M. Stevens, M.D., on the "Essentials of a Law to Regulate the Practice of Medicine in Indiana." It is full of good points, and we sincerely trust that the profession of Indiana will succeed in getting the legislation they desire.

——Ovariotomy, difficulties, diagnostic and operative; continued menstruation, after double ovariotomy. A reprint from the *American Journal of the Medical Sciences*, April, 1882. The author deprecates routine Listerism in this operation, saying, "cleanliness, not carbolic acid, is necessary. Keep sponges clean and warm, but *not* carbolized. Avoid carbolic acid about the peritoneum and open surfaces. Ligatures, sutures and instruments should be clean, but not carbolized."

BOOK NOTICES.

An Index of Comparative Therapeutics; with Tables of Differential Diagnosis, etc. etc. By Samuel O. L. Potter, A.M., M.D. Second edition. pp 280. Chicago: Gross & Delbridge, 1882.

This is an effort to prepare a volume containing the therapeutics of the drugs used by the regular profession, as well as those in use by the homœopaths. Just what practical benefit will be derived from such an exposition we are unable to see. But the book is well prepared, and possesses some interest from a literary and curious standpoint.

Manual of Diseases of the Skin, with an Analysis of eight thousand consecutive cases and a formulary. By L. Duncan Bulkley, A.M., M.D. pp. 312. New York: G. P. Putnam's Sons. 1882.

Dr. Bulkley has well earned the right to be considered an authority on diseases of the skin: and since such diseases have become so very common, it is really necessary for all physicians to have some knowledge of them. Specialists are not to be found everywhere, but skin diseases are, and they are in many cases extremely difficult to cure. This manual will be found extremely useful to every general practitioner.

A Manual of Obstetrics. By A. F. A. King, M.D., Professor of Obstetrics and Diseases of Women and Children in the Medical Department of the Columbian University, Washington, D. C. pp. 325. Philadelphia: Henry C. Lea's Son & Co. 1882.

This manual will be found useful by the busy practitioner, for two reasons: 1st. The instructions and advice it contains are intelligibly given, and so arranged as to readily be found when wanted. 2d. The book is small and of a shape convenient to carry about. By its use the practitioner may often be enabled to relieve himself from very embarrassing situations. The book is well illustrated and contains a complete index

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DIGITALIS AND ACONITE.

Modern science has unquestionably settled many formerly doubtful points, and while, perhaps, for many years to come, empirics will have to guide us to a great extent in therapeutics, physiological observations based upon experimental research will finally bring order out of chaos, and give us the why and the wherefore. This is nowhere more apparent than in the two great remedies by which we influence the action of the heart, digitalis and aconite. There are still many physicians who cannot see the great results gained by physiological experiments with drugs; let them compare a work on materia medica published twenty years ago with one of our time, and their eyes will be opened. What did we know formerly of digitalis and aconite? That they were remedies by which we might reduce the action of the heart and lessen the frequency of the pulse. But observations were published giving seemingly very antagonistic results. One report would show that aconite, instead of reducing the pulse really accelerated it, while a physician of equal repute would relate a case where this remedy undoubtedly diminished the number of beats. Similar contradictory observations were made of digitalis. Who threw light on the subject? Those patient investigators, who, with the aid of all modern means of research, carefully watch the action of drugs on lower animals and scrupulously note the effect on blood pressure, etc., guided us out of the labyrinth and gave us the definite indications for the use of these remedies.

And what is the result of their experiments? They have proven that digitalis is a tonic for the heart; that under its use the contractions of the organ become more powerful; that in consequence the frequent and weak pulse becomes slower and fuller, and that this remedy should, therefore, be employed, when the rapidity of the pulse is due to debility of the main organ of circulation and the blood pressure is diminished. They have further demonstrated, that the effect of aconite is exactly the opposite; that this remedy reduces the strength of the impulse; that in cases of over-action of the organ, of too powerful contractions of the same, it diminishes the frequency of the pulse and reduces the blood pressure. We can now see the reason why, in some cases of acute croupous pneumonia, digitalis is the safer remedy, and in others aconite or veratrum viride, the latter being very similar in its effect to aconite. If a strong and robust adult, with a vigorous heart, is affected with pneumonia, our aim, in the beginning, must be to reduce the strength of the heart, and of the blood pressure, not to increase it, and we administer aconite or veratrum viride with happy results. In such a case the remedies named will diminish the frequency of the pulse. But if an anæmic individual or an old person with a weak heart is suffering from pneumonia, and we should employ the same means, the heart would become weaker still, and the pulse at the wrist more rapid. Here digitalis will give tone and strength to the heart; under its influence the latter will contract with more vigor, and the pulse will be diminished in frequency.

It would lead us too far, were we to give every indication for the use of digitalis or aconite; but

this rule can always be followed with safety: Whenever we wish to reduce the arterial tension and the power of the heart, when we aim to weaken the latter, aconite is the remedy indicated; while to increase the strength of the organ and the activity of the circulation, to diminish the frequency and improve the tone of the pulse, we have to employ digitalis. Therefore, in organic diseases of the heart, aconite is beneficial in hypertrophy, and digitalis in dilatation.

SALICYLIC ACID.

While experience has proven that salicylic acid does not diminish the dangers of acute articular rheumatism—the percentage of heart complications, if we can rely upon statistics published, being rather higher since the use of this medicine than under the former alkaline treatment—the remedy is as near a specific in this disease as we will perhaps ever possess. But it should be given in large doses, and frequently enough. If correctly administered, it will invariably reduce the temperature, lessen the severity of the inflammation and swelling, palliate, not only the excruciating pain, but totally remove the latter in the majority of cases, and lastly, decidedly shorten the duration of the disease. Of this we have often, in private and hospital practice, the opportunity to convince ourselves. There are still many physicians who either have not as yet used this remedy at all, or did not succeed in gaining the results mentioned. Such physicians generally hesitate to push the treatment, because they are afraid, and dread the collapse about which so much has been written. But while the practitioner has frequently been cautioned not to push the remedy till the collapse takes place, and, to make matters worse, while it has been said that such accidents may happen suddenly, no sign has been given by which the less experienced physician might know when to stop. A long acquaintance with the drug has convinced us of the truth of the following assertions:—

(*a*) Salicylic acid or its combinations can be given to an adult suffering from acute articular rheumatism, in doses of twenty grains every two hours, without any danger, *as long as the pulse does not beat below* 84 *in a minute.* Whenever the pulse falls below 84, the dose has to be decreased to ten grains, or, still better, the frequency of the original dose is diminished, say every four hours or three times daily, instead of every two hours. Should the symptoms again become worse and the pulse increase in frequency, the physician can without any risk administer the drug the same way as at first, and continue it again, till either there is no more necessity for such large doses and their frequent repetition, or the pulse begins again to drop below 84; amelioration of the symptoms and decrease in the pulse rate going hand in hand.

(*b*) Instead of giving salicylic acid alone, the following combination acts better and—if the first rule be observed—is safe, even in cases of pre-existing organic heart lesions, and seems decidedly to lessen the danger of endo- and pericarditis arising as complications:—

℞. Acidi salicylici, ℥ ss
Liquor. ammoniæ acetatis, f℥ ij
Aquæ destillat., f℥ iij
Syrup. cortic. aurantii, f℥ j. M.
Sig.—A tablespoonful in water every two hours.

If this combination is prescribed, and the first rule followed, our readers will find that, in cases of acute articular rheumatism, the effect of salicylic acid mentioned above will invariably take place, but collapse never happen.

Notes and Comments.

Cesspools.

From the *Sanitarian* we take the following very pertinent remarks: Cesspools and privy vaults are the bane of the country; the perennial hot house of scarlet fever, measles, typhoid fever, diarrhœa and dysentery, and the exciting cause of many other diseases. But country house privies, odious as they are, are insignificant as compared with what Professor Frank H. Hamilton, in his paper before the New York Academy of Medicine, so significantly designates, "Dangers of Æstheticism," if applied to hidden city vaults, school house cesspools, æsthetic *new* villages, villas and fashionable country resorts "for health." For the old-fashioned country-house vault, light and air, aided by the sense of smell, do something toward lessening dangers. But the

æsthetic vaults and cesspools common to fashionable new villages, schools and summer resorts, are hidden away in dark corners, or excavated and carefully covered, even turfed over, lest the beauty of the lawn be marred. Carefully hidden, as the viper or the sneaking assassin, and supplied with all the conditions of potency—darkness, warmth, moisture and ferment—the conditions are complete for the development and self-multiplying of disease poisons, call them germs or what you may, to an illimitable extent. For the *old* country-house privy there may be some excuse for its construction, but in the light of present knowledge, those who tolerate them might learn wisdom from the cats; but no time should be lost on the obtuseness of those who will not learn.

All such sources of disease should be indicted and removed as common nuisances, and to build one be made a criminal offence.

Rupture of the Œsophagus.

At a recent meeting of the Royal Medical and Chirurgical Society (*British Medical Journal*), Mr. Stanley Boyd related a case in which the œsophagus had ruptured into the right pleura. The patient was an infant, aged four months, who had been exceedingly ill for some weeks before death, with erysipelas followed by peritonitis, which had followed an operation for strangulated undescended testicle. About two hours before death dyspnœa suddenly set in, and lasted for an hour. When the dyspnœa passed off the child was able to take food in small quantities, but while it prevailed it choked when given brandy and milk. At the autopsy, about one ounce of clear, deeply blood-stained fluid, free from lymph or any trace of milk, was found in the right pleura; both lungs were partially collapsed, the lower and middle lobes on right side were very red, and were studded with petechiæ; and at the root there was a considerable sub-pleural hemorrhage. The pleura was absent from the œsophagus over the whole of its right side, below the root of the lung, and its torn edge could be easily seen near the diaphragm. Pressure on the œsophagus caused a bubble of air to escape through a small opening in its wall; on the inner aspect of the gullet several small blood-clots were found near the hole referred to; this measured about two millimeters, and for a short distance above and below, the circular muscular fibres were exposed. Mr. Boyd considered that the clots in the gullet, the bloody fluid in the pleura, the marked redness, and numerous petechiæ on the surface of the lung, proved that the perforation took place during life, and that, possibly, it had been the cause of the dyspnœa which set in a few hours before death.

Arsenical Treatment of Chorea.

M. Siredey, we read in the *Revue de Thérap. Méd. et Chirurg.*, has long had recourse to arsenic in the treatment of rheumatismal chorea, and has had good results from this medication. He uses the solution of Bondin:—

℞. Ac. arsenious, gr. xv
Aquæ destill., Oij. M.

This is allowed to boil for about a quarter of an hour, and is then ready for use. The extreme dilution of the solution is favorable for its use among children. For a child from six to ten years of age, about one drachm and a half may be given daily, in divided doses, in sweetened water. In this way the medicament is generally well tolerated.

Dr. Sottmann, of the Breslau *Clinic*, constantly prescribes the following solution in chorea:—

℞. Liquor Fowleré, ♏iv
Aquæ, ʒij. M.

This quantity to be taken in divided doses daily. He generally obtains a complete cure in from 16 to 21 days.

In some cases he adds from 8 to 15 grains of chloral to the prescription. He has generally found that anæmic children, and those of hereditary nervous dispositions, bear this form of medication well.

The Chemical Cause of Life.

Up to within a very few years, physiology did not suspect that there was any chemical difference between dead and living protoplasm. Many still will say there is none. But recent researches, beginning by an article of Pflüger's in 1875, point strongly in an opposite direction. One of the ablest essays in the affirmative was written last year, by Dr. Oscar Loew (well known in scientific circles in this country) and Dr. Thomas Bokorny, and published at Munich, with the title *Die Chemische Ursache des Lebens theoretisch und Experimentell nachge, wiesen*, pp. 51.. The result of their investigation goes to show that living protoplasm owes its property of *life* to the presence of aldehyde groups, which are characterized by intensely active atomic movement. When death takes place, it is coeval with and caused by a transformation of these aldehyde groups into amyd groups, with diminished molecular motion, thus leading to cessation of action.

The thoughtful reader will not fail to note the very great importance of this physiological theory,

and we can say that it is supported by a series of admirably careful experiments. We earnestly commend the pamphlet to American physicians. It is published by J. A. Finterslin, Munich, and can be obtained through any importer.

Laryngeal Anæsthesia.

The *Lancet* says, editorially—

The sensory branch of the superior laryngeal nerve enters the larynx through the thyro-hyoid membrane, below the rounded extremity of the cornu of the hyoid bone. At this spot the trunk of the nerve is not far from the surface, and Rossbach has proposed to render the larynx insensitive by injecting near this nerve, on each side, a small quantity (five milligrams) of morphia, with the intention of destroying the conductibility of the nerve. The proceeding was perfectly successful. He afterward ascertained, by experiments upon healthy persons, that the conductibility of the nerve might also be interrupted by a considerable degree of cold. He therefore employed Richardson's ether spray apparatus, directing a jet on each side of the neck simultaneously. The application for two minutes sufficed to render the larynx insensible to the presence of a foreign body. The method is suggested as likely to be useful in reflex spasms originating in the interior of the larynx. It is possible, also, that the facts afford an explanation of the unquestionable utility of the application of ice to the exterior of the larynx in some cases of spasmodic croup.

Imperforate Hymen.

Dr. W. G. Moore says, in the St. Louis *Clinical Record*, that a young girl of seventeen called at his office with symptoms of a malarial attack, for which he gave her appropriate treatment. Three days later he was called to see her, and upon entering the room found her screaming with pain. The mother said that the fever had "settled in Lizzie's womb." Every few minutes she would have a very severe pain in every way simulating labor pains. On attempting to introduce the finger into the vagina, it was met by an elastic tumor as large as the vertex of the ordinary fœtal head, and having exactly the feel of the protruding membranes when about to rupture. Further inspection revealed an exceedingly thick and resisting imperforate hymen. This was punctured with a bistoury, when, by the aid of a grooved director, the incision was enlarged to the full size of the vagina. The after treatment consisted in rest in bed, and carbolized injections. The retained blood in this case was at least a quart.

A New Fungus.

The *Gazette Médicale* states that M. Pasteur has found an organism in the blue and green discolorations which are sometimes seen on old surgical bandages, which preserved through many cultivations the same characters and properties. It consists of colorless globular cells, from $\frac{1}{1000}$ to $\frac{1}{1600}$ of a millimeter in diameter, and has the power of secreting a pigment, which may easily be dissolved out by chloroform. The blue, or pyocyanine is reddened by acids, and restored by alkalies. Dissolved in a weak acidulated solution, neutralized by potash, and treated again with chloroform, pyocyanine yields a pure blue liquid, from which, after evaporation, it appears in the form of crystals, sometimes as prisms or matted needles, at others as rectangular plates. The watery solution of pure crystalline pyocyanine is neutral, and is unchanged by boiling.

Arsenical Poisoning from Sardines.

Dr. P. S. Jenkins, in the *Medical Herald*, reports the following: He was called to see two patients, whom he found vomiting and purging violently, with pain at the epigastrium, intense thirst, dryness of fauces, extremities cold, shivering, chilly, pulse scarcely perceptible and very rapid, respiration belabored, great agitation and restlessness, intellection good. Under the following treatment they both recovered: Milk and eggs to protect mucous membrane: hypodermic injections of sulph. morph. and atropia, quinine; carbonate of ammonia and whisky were given as cardiac stimulants, and dialysed iron as a physiological antidote. They had both eaten sardines and oysters. Upon examination, the sardines were found to contain a large quantity of arsenic.

Pet Animals as Carriers of Contagion.

The *Sanitary News*, calling attention to this danger, says: The contagious feature of some diseases has been disputed by the incredulous, because no channel of communication could be discovered between the first and subsequent cases. Dr. William Bunce, of Oberlin, Ohio, reports a case in which five children of a family of six were taken with diphtheritic sore throat, no source of contagion being discoverable about the premises. A cat in the barn was found to have the characteristic lesions of diphtheria, and inquiry elicited the fact that the cat had been

fondled by the children during its illness. A few months later this same observer lost a patient from diphtheria, who had a few days before charitably removed some obstruction from the throat of a pet cat, which, upon examination, was found to be diphtheritic false membrane. In these instances the cats were made the carriers of the contagion by contracting the disease, either from some preëxisting case among animals of their own kind, or among people who petted them, or it may be from some unsanitary surroundings.

A Rare Affection.

M. Niellé, naval surgeon and professor of colonial pathology at Brest, has observed a papular eruption on a cabin boy of fourteen years of age, which is peculiar in character, and cannot be mistaken for either scabies or eczema. It resembles an affection called crawcraw, which exists among the negroes of the New Guinea coast. Microscopical examination of the serosity of the papules brought to light the presence of nematoid worms, similar to filariæ, in different degrees of development, from the adult and sexual stage, down to the embryonic. In the embryonic stage they are found in the blood. This affection is not contagious. It is believed that the filaria enters the animal economy by means of the water imbibed. In the adult stage the worm is one-third of a millimèter long, and one-hundredth of a millimèter in diameter.

Paronychia Gangrænosa.

Mr. Croly presented two specimens of this disease to the Pathological Society of Dublin (*British Medical Journal*). Both patients were middle-aged ladies, and in both the seat of disease was the inguinal phalanx of the first finger of the right hand, which phalanx at last separated. One of the initial symptoms was severe pain, like the stinging of nettles, in the end of the finger; vesicles then formed, which passed into unhealthy bullæ.

Pericarditis in Uræmia.

M. Keraval, in a recent memoir, has made an interesting study of the variety of pericarditis sometimes observed in Bright's disease.

From his researches it seems to occur most frequently in interstitial nephritis, and is even then rather rare. It is always in the last period of the disease, generally after the development of uræmic symptoms, that it appears. It is constituted by a neo-membranous inflammation, terminating sometimes by adherence of the layers of the serous membrane. Generally there is no liquid effusion, or it is in very small quantity. As it is not accompanied by endocarditis, the pericarditis often passes unperceived unless the heart is examined, when the usual physical signs are found. It is generally of grave prognosis, as the patient soon succumbs to the uræmic symptoms.

M. Pasteur's Discoveries.

The *British Medical Journal* says: An application to man of M. Pasteur's researches on the preservation of animals from malignant pustule has been reported by M. Casson. in a note read at a meeting of the Acadmié des Sciences. He described the case of a farmer who had been twice attacked by charbon, The first attack was slight, the second was very serious and expected to be fatal. However, the dangerous symptoms speedily disappeared, leaving two deep ulcers on the back of the hand. M. Casson considers that the rapid improvement indicates an actual vaccination resulting from the first attack of charbon, and suggests that the case confirms the facts established by M. Pasteur's researches on the preservation of animals by the inoculation of attenuated virus.

Sarcoma of Tonsil.

At a recent meeting of the Pathological Society, of London (*Medical Press and Circular*), Dr. Samuel West presented a specimen removed from a woman, aged seventy-four years, who had come under his care for "sore throat." The right tonsil was the seat of a large tumor; it was rapidly increasing in size, and displacing, but not invading, the tongue and adjacent structures. She died within five months of its commencement. The lymphatic glands of the neck were all much enlarged. A large secondary growth was found between the spine and the spleen, and smaller ones elsewhere. Microscopically, the tissue was found to be a small round-celled sarcoma.

Congenital Teeth.

Dr. F. B. Harrington reports the following case in the Boston *Medical and Surgical Journal*:—

Two small white spots were accidentally noticed on the lower jaw of a child, then twelve days old. The spots were supposed to be thrush. Four days later the mother complained that the child caused her great pain in the nipples while nursing. An examination of the mother's breasts did not show adequate cause. On looking into the child's mouth the two spots were found to be two sharp-edged incisor teeth. They were removed, and appeared to be the right central and right lateral lower incisor.

Special Reports.

NO. VI.—MICRO-GERMS.*

BY DR. W. F. MUHLENBERG,
Of Reading, Pa.

The science of medicine, like its sister sciences, has been eminently progressive in its character. Each new advance has contributed to the removal of disease, the diminution of human suffering, the prolongation of life, and the increase of the happiness of mankind; and we may reasonably hope, from the past history and present condition of medicine, for a like progress in the future. Our knowledge of disease and its removal has not yet reached perfection, and as long as this is not the case, there is ample room for continued investigation.

In harmony with this view, I have selected for the present occasion the subject of micro germs. It is true our knowledge of these germs is yet in its infancy, and we cannot accurately estimate their importance in producing disease. Yet the subject is one of such great extent, and seems to be so intimately connected with the manifestations of disease in the human system, that it has appeared to me advisable and useful to present some of the many interesting facts and observations with reference to these germs, and the proper methods to be pursued in propagating and preserving them. This seems to be the more necessary because the knowledge of them is not easy of access, often being of a fragmentary character, and scattered in many publications.

The only work, so far as my knowledge extends, to be found in this country, on the subject of "Bacteria" or germs, is a translation by Dr. Sternberg, U. S. A., of a French work on the subject. by Dr. Magnin, and to this we especially refer all those who are interested in the study of these germs in their botanical peculiarities.

Before proceeding with our subject, we may remark, that every physician of the present day ought to possess a microscope; for, by following the methods of examination heretofore proved to be scientifically accurate, or discovering new scientific processes of investigation, he may succeed in solving problems which hitherto have escaped solution, or find out new facts which may be of incalculable benefit to the human race. The researches of Pasteur, a single individual, it is said, have been of more service to France than the milliards paid to Germany. The possibility that some of our infectious diseases, by a process of vaccination, may be rendered harmless, is sufficient to attract workers in that direction; and though the results thus far may seem to be insignificant, they ought not to be discouraged by the sneers of others, but patiently continue their labors, with the hope of ultimately obtaining more accurate knowledge upon the subject.

The only direct test for germs is the peroxide of hydrogen, H_2O_2, but as it is split up into oxygen and water, by numerous metals, and also by the red-blood corpuscles, it is of an unreliable character. The products of the fermentation, degeneration, and putrefaction of germs, such as ammonia, sulphuretted hydrogen, leucin, tyrosin, indol, phenol, skatol, cresol and paracresol, phenylpropionic and phenylacetic acids, can be more readily detected. The pancreatic fermentation decomposes albumen into leucin, tyrosin, and similar bodies; but indol, skatol, phenol, and cresol, are ordinarily found in the large intestine. The coats of the large intestine seem to be endowed with a great capability of resistance to germs and their products; and while these bodies appear to be unable to enter the system through the lower bowel, the marks of their entrance, in the shape of ulcers and colonies, are always found in the small intestine, particularly in the neighborhood of the ileo-cæcal valve. Sulphuretted hydrogen, (1) always present in the large intestine, in larger or smaller quantities, has been proved to have passed through the coats of the small intestine, and to have been excreted through the kidneys; and this shows that products of decomposition can only enter the system through the upper portions of the bowel. The excretions of the intestinal canal of new-born infants do not contain the higher products of albuminous decomposition, as indol and skatol, and, as has been frequently proved, no germs. *

All these products (2) appear to be removed

* Read before the Pennsylvania State Medical Society at its annual meeting, at Titusville, May, 1882.

* The tests for leucin, $C_6H_{13}NO_2$, are as follows: If a fluid suspected of containing it is evaporated in a platinum dish, with a small quantity of nitric acid, there will be left a colorless, almost invisible residue, which, when heated with a little caustic soda, becomes yellow or brown, as the leucin happens to be pure or impure; and, on further concentration, changes to oily-like drops, which move freely around the dish without adhering (Scherer's test). When this substance is dissolved in a boiling solution of lead-acetate, on the addition of ammonia to the cooled solution there will be a separation of shining lamina, consisting of a mixture of leucin and plumbic oxide, from which the leucin can be subsequently sublimed, in wooly masses.

The tests for tyrosin, $C_9H_{11}NO_3$, are as follows: Add to the suspected fluid, diluted with some water, a solution of the acid nitrate of mercury; then boil for some time; if tyrosin is present, the solution, at first, will exhibit a beautiful rose-red color, and subsequently, a red-precipitate (Hoffman's test); or, pour a few drops of concentrated sulphuric acid on the fluid, heat it moderately, when it will dissolve with a faint red color. If water and barium carbonate be added until effervescence ceases, on evaporation and filtration, the addition of a few drops of a neutral solution of ferric chloride will give rise to a violet color (Peria's test).

as so-called ethylsulphuric acid. Phenol or carbolic acid, in addition to a number of intermediary products, seems to be derived from tyrosin, or, more probably, comes off as a paracresol.

Indol, $C_8H_7N_7$ melting at 52° C., and skatol, either C_9H_9N, or $C_{10}H_{11}N$, viewed as a methyl-indol and melting at 95° C., are two of the most important products of albuminous decomposition, as their presence almost invariably indicates germs.

The presence of skatol with indol changes somewhat the result of the ordinary test for indican in the urine (it is necessary to add to the urine an equal quantity of hydrochloric acid, and of a saturated solution of chloride of lime, or chlorinated soda), for, if indol alone is present, the fluid becomes green or blue, but if skatol is in excess, it becomes violet or red. Indol passes over into the urine as the indoxysulphate of potassium. There is a marked increase of indol in dyspepsia. gastro-duodenitis, chronic constipation, intussusception, diarrhœa, cholera and typhoid fever, while phenol is apparently increased in peritonitis and miliary tuberculosis. Jaffe found that the tying of the small intestine caused an increase of indican in the urine; and the same result was produced by a prolonged and exclusive meat diet. Skatol gives with dilute nitric acid a pale violet color, and with fuming nitric acid a red flocculent precipitate (Nencki's test). Skatol (3) besides, is less soluble in water, and is not discolored by the addition of chlorine water. Dr. Wernich (4) who has made a special study of these products of albuminous decompo sition, lays down two general principles: Firstly, "That the bacteria themselves prepare the conditions for their destruction;" and, secondly, "That very slight quantities of the poisons so generated protect against infection by new organisms of the same variety;" and he believes that these germs cease to increase, not on account of a deficiency of oxygen or nutriment (although many germs are anærobiotic), but because of the generation of some bodies of this kind which occasion antisepsis instead of putrefaction. The fact that the products of decomposition of the germs artificially cultivated do not smell of indol or skatol (so-called from the Greek word *σκῶρ*, gen. *σκατός*) proves almost conclusively our inability as yet to solve the life problems of these germs; nevertheless it does seem remarkable that a body like carbolic acid, one of our best antiseptics, should be a natural product of the decomposition of albuminous bodies in the intestines. Phenylacetic acid, C_6H_5COOH, C_7H_2, or $C_8H_8O_2$, and phenylpropionic acid, $C_6H_5CH_2CH_2COOH$, or $C_9H_{10}O_2$, bodies analogous to benzoic acid, but as yet insufficiently known, and phenol and cresol, two bodies well known, make up the list of bodies resulting from the decomposition of germs.

In the microscopic examinations, the various appliances used should be in a state of absolute cleanliness, on account of germs in the various fluids used, and from the constant presence of spores in the air. Micrococci and bacteria (5) have been found even in a two per cent. solution of carbolic acid, as well as in distilled water and various hypodermic solutions, but cannot be found in perfectly fresh solutions of carbolic acid, which seems to lose its efficacy as an antiseptic after exposure to the air. From experiment at Montsouris, in France, it was shown that during the warm months there was an average of 28 spores in each litre of air, while during the winter months very few could be found. On the contrary, after a long continued rainfall, nearly 100 spores were found in each litre, and the air of rooms was always more deficient in them than that outside. Distilled water, which has been thoroughly boiled, should be used in all the investigations. All the glass ware should first be cleansed with some strong mineral acid (sulphuric acid and a solution of bichromate of potash answering very well), then well washed with distilled water, and subsequently purified with absolute alcohol, the remains of which should be burned out, or the glass passed through the flame of a Bunsen burner. Any metallic instruments, used for applying a deposit on a slide, or for other purposes, should be passed through a flame, and, where possible, used in a heated condition. Keeping the various instruments for some time in a hot air bath, or an incubator, at a temperature of 100°–120° C., will be found almost necessary. After the culture fluids have been prepared and sterilized, a compact wad of cotton, which has been heated to 135° or 140° C. will serve to cover the test tubes and prevent the access of spores. It is not necessary, and, in fact, it is disadvantageous, to carbolize such wads, as the presence of carbolic acid may keep the germs from growing.

Germs may be confounded with blood corpuscles, fat globules. epithelial cells and their nuclei, leucocytes, mycelial threads, vibrios, coagulated fibrin, granular crystalline deposits, granules of casein, particles of fibres, wood, feathers, etc., and air globules. and possibly, the small granules spoken of by Howlett (6) which, 2.5 to 4 m. long, arrange themselves in racemes and can be stained with methyl-violet.

Forms (7) whose thickness does not exceed 1 m. cannot, in general, be distinguished from inorganic bodies of like size and form. Crystalline bodies, which have double refraction, may be recognized by the polariscope, as germs have only single refraction. If granules possess continuous motion, particularly in a straight or curved line, they are certainly schizomycetes or monads, while molecular motion gives no positive decision. If the granules arrange themselves in pairs or triplets, and, particularly, if they show a true spherical or oval form, they are organized. If bacilli seem to be present, and if they present a knee-shaped curvature, they are also organized. "In zooglœa forms (8) the micrococci of an individual zooglœa mass are always uniformly of one size, and are always at the same distance from one another, in contradistinction to albuminous and fat molecules." Fat and most other molecules are soluble in alcohol, liquor potassæ, ether, strong acids and alkalies. Pus and epithelium are dissolved by caustic potash, while inorganic and many organic bodies are destroyed by the strong acids. The granular mass (9) is insoluble in acetic and hydrochloric acids, caustic potash, glycerine, chloroform, and oil of cloves; ammonia makes germs more colorless, but dissolves pus, while liquor potassæ, with a subsequent addition of iodine, colors the germs brown. Cultivation is the best mode of purifying and distinguishing the germs.

The germs are best examined by the dry method (10) which consists in allowing a thin layer of the fluid containing them to dry on a slide, under a cover glass, and subsequently softening and staining it for examination. The substance should be spread in a thin layer, so that greater or less interspaces lie between the objects, and then allowed to dry under cover, so as to prevent the admixture of other spores. Such dried slides can be preserved, even for months, under a bell-glass, and then softened. Water and glycerine loosen the germs from the glass, but absolute alcohol, and a half per cent. solution of chromic acid renders them insoluble, but hardens them so much that they often lose their natural form. Acetate of potash (aqua 2 pts., acet. of pot. 1 pt.) causes them to swell up, without separating them from the glass, and although it makes them paler, does not change them. In some cases, it is better to take the fluid for examination from the top of a culture tube, in others, from the bottom, where are usually found the permanent spores. In the examination of fresh bodies or liquids, like urine, it is recommended to add carbolic acid or thymol to the fluid, to collect the sediment, and after the addition of a few drops of a half per cent. solution of caustic potash, to stain. A solution of osmic acid (1 : 100) serves to harden the mass of filmy bacteria found on the surface of a liquid, and surrounded by a zooglœa mass.

A strong solution of iodine (2–5 per cent.) stains them a yellowish brown; united with sulphuric acid it gives some of them a blue color. All the different aniline dyes, eosin, fuchsin, saffron, Bismarck brown, methyl-green, blue, and violet, are all well suited for staining. Methyl-blue and violet, whether used in strong or weak solutions, seem to have the strongest affinity for germs. Aniline brown is best for photography, but as it is rendered colorless by acetate of potash, the germs must be preserved in glycerine and water. While tube-casts and the granular membrane in urine are also stained blue by methyl-blue, the staining is not so deep as with the germs. Hæmatoxylin preparations, after thorough washing, can be mounted in glycerine, or a solution of chloride of calcium. Glycerine and acetic acid stains them a yellow brown. They are stained red by carmine, hydrochloric acid and glycerine, and brown by carmine, if, subsequently, they are treated with the tincture of the chloride of iron. The acid preparations of the anilines, where the coloring principle seems to lie in the acid, like the picrates, do not stain them. The anilines have the further advantage that they soften the germs without loosening them from the glass, unless too weak a solution is used. A concentrated solution of sulphate or acetate of calcium (1 : 2) can also be used to preserve them, after they have been stained by methyl-violet. In examining animal tissues it is proper to harden them in alcohol, make the sections, and stain in the usual manner. After the tissues have been stained, a weak solution of carbonate of potash will decolorize all the animal tissue, without affecting the germs.

There are four fundamental forms: * spheroid or spherobacteria, rod-shaped or microbacteria, thread-like or desmobacteria, and spiræ or spirobacteria †. The reaction with iodine and sul-

* Klebs (*l. c.*) divides the pathogenic germs into two classes: The monadina, and the microsporina. The granules of the monadina are larger, and lie imbedded in a sort of jelly, which forms a clear zone around every granule. The granules themselves are arranged in parallel rows, and the brown color of septic micrococci is lacking. They are less stained by the anilines. Septic processes, like diphtheria, are produced by the microsporina. The monadina bring on inflammatory processes, attended with the formation of connective tissue, such as the acute exanthemata, and rheumatic, nephritic, hepatic, and cardiac inflammations.

† The coccobacteria (11) are micrococci, which are capable of transforming themselves into short rods, and form groups united by zooglœa. While, by prolonga-

phuric acid, proving the presence of cellulose, shows them to be of vegetable origin, often microscopically undistinguishable. They can be differentiated best by their mode of growth on solid substances.

As germane with the scope of the address, we present a short description of the more important supposed pathogenic germs.

The bacilli malariæ (12) "are small rods, 5–10 m. long, which, during their evolution, become converted into tortuous filaments, which divide into joints by the formation of clear spaces in the protoplasm, or, by means of separating membranes. The filaments produce spores on the surfaces exposed to the air, and spores are developed in the interior. The spores are situated in the centre, or toward the extremities of the joints, but may be found in both places at the same time." For their growth they require oxygen, a temperature of 20° C., moderate but steady humidity, and the direct action of the sun. In the body they are only found in the cold stage of the fever (by aspiration of the spleen).*

The bacillus anthracis is found in translucent filaments, more or less segmented. At the end of forty-eight hours, in culture fluids, it shows germs distributed in series along the filaments. There is a connection of gelatinous matter, which is absorbed, and eventually the germ drops off, being reduced to so called germ-dust, which can be cultivated after lying dormant for years. The bacilli (13) of putrescent blood are rounded at the ends, while the bacilli anthracis are perfectly square at the same place.

The micrococcus diphtheriæ is a minute spheroid, found particularly in the mucous and submucous vessels and the lymph channels. It is (14) 1–1½ m. long and 3 m. broad in the deeper portions, and 4 m. long and 1.1 m. broad in the superficial areas. They are generally associated in pairs, more rarely in chains, but frequently in colonies, in which the gelatinous mass can be cleared up by acetic acid. Their products seem to be fatal to themselves, as in cases of convalescent diphtheria very few can be found, but in their place, bacilli, leptothrix and the bacteria of putrefaction. The presence of rod-bacteria in diphtheritic membrane (8) is proof that it has commenced to putrefy.†

The bacillus typhi, 80 m. long and 5 m. broad, found mainly in the lymphatic organs of the abdomen (intestinal mucous membrane, intestinal glands, spleen), is more slender than the ordinary bacteria of putrefaction (16), has permanent spores (17), and takes staining less distinctly.* It is not found in the intestine, where there is even a tuberculous ulceration.†

The spirochæte Obermeieri is a non-extensible flexible filament, found in the blood of relapsing-fever patients only during the pyrexia, but is never found in the urine. On the contrary, the urine is full of micrococci during the remission. It can live (20) 14 days at 22° C., 15 hours at 38° C., and only 4 hours at 40° C.

If an albuminous or saccharine fluid is exposed to a high temperature, and the entrance of spores carefully excluded, it will remain perfectly unchanged, but if we add to it some putrefying substance, or some of the bacilli anthracis, we will find a decomposition apparently identical in both cases, except as regards the microscopic examination, and the result of the decomposition, for, in the former case the smell of putrefaction will manifest itself, while in the other only ammonia will be noticed. The innocent micrococcus (21) ordinarily found in the mouth has been transformed by cultivation into a variety of microgerm which speedily kills the animal inoculated (by septicæmia).

The ordinary hay-bacillus, (22) by cultivation in egg-albumen, and then in blood serum, has been transformed into the bacillus anthracis, but this has been strenuously denied (Koch *l. c.*), and, even if it were the case, it must be proved that the same transformation can take place in the body. Air and moisture seem better for cultivation, and an incubator, or moist hot air bath, is almost a necessity. After tubes have been sterilized, it is well to stand some aside for control-experiments, so as to be thoroughly convinced that whatever was added brought on opacity and decomposition of the culture fluid. Mechanical disturbances (23) and electricity apparently in-

tion of the cocci, rods are formed, which break up into chains by segmentation.

* In the examination for this germ, the air, taken directly over the surface of the ground, was drawn through an aeroscope of peculiar construction which allowed the deposition of all filaments and spores on a glass plate covered with gelatine and glycerine.

† It consists (15) of long, jointed, mycelial rods, and spores of two kinds; the one, oval or round, giving rise, by a gradual process of elongation, to the mycelium; the other, rectangular, and showing, after a time, minute, brilliant specks in their interior, about the size of an ordinary micrococcus.

* Wernich (*l. c.*) denies *in toto* these specific criteria of the bacilli typhi, and believes that the ordinary bacteria of the intestinal canal, by a process of ascent into the small intestines, find circumstances more suited to their propagation, and then produce typhoid fever.

† There is no doubt (18) that the bacilli typhi are present in every typhous plague of the intestines, as long as there is a process of development of the disease. They appear to reach the height of their development in fourteen days, and then undergo retrograde metamorphosis, after necrosis and ulceration or degeneration of the cells has taken place.

terfere with the growth of germs in culture tubes. The microbe of chicken cholera (24) reaching only slight development in sterilized urine, and destroyed in yeast solution, is cultivated most successfully in chicken broth, at a temperature of 25°–35° C.; and can be attenuated by allowing an interval to elapse between successive cultivations, and by cultivating at a temperature of 40°–45° C. The (25) micrococci of wounds do not produce putrefaction in culture fluid, and develop best when removed from the air. The micrococci of diphtheria, which multiply best at 40° C., and are arrested in their movements by a temperature of 70° C., do not need a large supply of oxygen, and are generally found at the bottom of a culture tube, while the bacilli are at the top. The animal organism (14) appears to be the best culture medium. The bacterium (26) killed by heating for several hours to 50° C., slowly increases even at 5° or 6° C., but, like the micrococcus prodigiosus, (27) (in quality of a blood-red color) develops best at 30°–35° C.

Blood serum is not a good medium for cultivating the bacillus septicæmiæ, which will not grow in the mucus of a healthy urethra, (Lister *l. c.*) but develops best in a hay-infusion, while the bacillus anthracis will not grow in a hay-infusion, but developes best in blood or aqueous humor. In all experiments, it is advisable to use the second or third cultivation, to prevent the admixture of other spores, and to develop the germs in the most favorable way. As nearly all bacteria contain sulphur, some little can be used in the culture fluid.

Sterilized bouillon, chicken or meat extract, ascitic fluid* aqueous humor, egg-albumen, blood serum, and hay-infusion are some of the substances used for culture fluid.

Among the artificial fluids are:—

PASTEUR'S.

	Gm.
Distilled water,	100
Sugar,	10
Tartrate of ammonia,	1
Ashes of 1 gm. of yeast,	075

(Bucholtz replaces the yeast by ½ gm. of phosphate of potash.)

COHN'S

	Gm.
Phosphate of potash,	1
Sulphate of magnesia,	1
Tribasic phosphate of lime,	01
Tartrate of ammonia,	2

Water, enough to make cc. 20.

* (Although the ascitic fluid, from a case of two years' standing, proved to be antiseptic, from the phenol and indol it contained. Salkouski *l. c.*)

KNOP'S.

	Gm.
Phosphate of potash,	1
Sulphate of magnesia,	1
Nitrate or chloride of lime,	2

Water, cc. 20.

Gelatine (28) added to culture fluids, in a proportion of 3–4 per cent., furnishes a good substance for solid cultivation, although potatoes, first boiled and then sliced, are the best medium for the dry cultivation, which appears to be the best mode of discriminating them with the naked eye. The only way of sterilizing fluids is by heat, and for this purpose, dry is better than moist heat. A temperature of 70° C. is generally sufficient to kill all bacteria, but it requires a prolonged exposure at 120° C., or even higher, to kill the spores. Very low temperatures, even as low as 40° C. (Irisch *l. c.*), fail to kill the spores.*

* Passing (29) the motes, seen in the air, through marble moistened with potash, and glass wet with sulphuric acid, and through a variety of ethers and alcohols, did not sterilize, though they were destroyed by their transmission through a flame.

(*To be continued*).

CORRESPONDENCE.

Morphia Poisoning.

ED. MED. AND SURG. REPORTER :—

I was called and arrived at 12.05 A.M. of 10th March, 1882, and found well developed woman, aged 22, lying on back in bed, mouth open, jaw pendulous, tongue dry, eyelids closed, pupils contracted, skin normal, respirations 5 per minute, pulse regular for 4 or 5 beats, and then fluttering and not easily counted. Was informed by her mother that she had taken "morphine" in a freak, to offset a joking statement of her husband, that he was going to come home drunk that evening; that she had taken it on an empty stomach, about 7 P.M., and had laughed over it. They supposed she had not taken enough to injure her; after a stage of excitement she had gone to bed and fallen asleep, about 11 P.M., and in half an hour had awaked her husband, who was asleep by her side, by urinating upon him, which caused him to investigate her condition. She was menstruating at the time; was said to be unused to effects of morphia. I have since had good evidence that she took six grains of sulph. morphia.

Treatment.—A large and very efficient mustard poultice was applied over stomach and allowed to vesicate, and warm irons so closely applied to feet as to unintentionally burn both severely. At 1.05 A.M., ½ gr. sulph. atropia was injected in arm; pulse 26 to ¼ minute. At 1.25 A.M. injected 30 minims sulph. ether; at 1.40 A.M. injected 30 minims spts. ammon. aromat. in abdominal wall; pulse weak, eyes slowly dilating and responding to light; respirations 8 per minute, in following manner: 4 resp. in first ¼ minute, and 4 in remaining ¾ minute, irregularly distributed and then no effort to respire for from 1½

to 1⅔ minutes. At 2 A.M. rather better pulse and respiration. At 2.15 A.M. respiration 7 per minute, divided as before in same manner. At 2.30 A.M. had 14 respirations in 3 minutes. At 3 A.M. pupils dilated; general condition seemed worse. At 3.10 A.M. resorted to artificial respiration. At 3.25 A.M. first used battery, according to rules, to induce respiration. At 3.45 A.M. respiration 10 per minute, which in 2 minutes increased to 14 per minute; general condition improved. At 4.15 A.M. forced a cupful of strong black coffee down throat, and she progressed toward recovery. The injections of ether and arom. spt. ammonia were repeated 5 or 6 times at irregular intervals. She says the first sensation she was conscious of during effort to resuscitate was the pain in feet, caused by hot irons, and I believe the burns on bottoms of both feet a powerful factor in arousing her. The treatment was directed to meet the indications, as they appeared, and each seemed to fit and fill a place that without would have left a fatal void. The case seemed a hopeless one, from amount taken on empty stomach, the time that had intervened, and the character of the respirations. C. POLLOCK, M.D.

Muncie, Ind., April 17th, 1882.

NEWS AND MISCELLANY.

The Advancement of Scientific Medicine by Research.

At the first meeting of the executive committee of the new association, the treasurer, Dr. Wilks, announced subscriptions amounting to over £1000. Sub-committees were appointed to report—1, on the present hindrances to research, due to the working of the Vivisection Act; 2, to report on the best ways in which exact researches in medical science can be encouraged; 3, to prepare a list of papers to be reprinted and circulated for the use of the profession, and through their means for the public; 4, to arrange for asking the help of those interested in the objects of the association as corresponding members in the principal towns of the kingdom.

Sanitation Justified.

The *British Medical Journal* says: "A noteworthy instance of the effect of improved sanitation upon the rate of mortality at Carlisle is mentioned by Dr. Elliot, in his last report on the health of that town. In 1841, the census gave the population as 23,959, and during the seven years (1842-1848) the average yearly mortality was 728; whereas in 1881, thirty years later, the mortality was only 717 among an increased population of 35,866.

Fame.

There lately went the rounds of the medical press an item from a South American medical journal, to the effect that the autopsy on the late President Garfield was made by *Dr. Longbranch*. Now comes something almost as bad from London. The *Medical Press and Circular*, of April 5th, 1882, says "Our American exchanges announce the decease of a prominent and well-known representative of American Surgery, Dr. Joseph Pancoast, Professor of Anatomy in the *University of Pennsylvania* from 1841–1874." Verily fame goes but a short way. Our trans-Atlantic brethren had some idea that Professor Pancoast was a great man, but the idea must have been a very vague one.

Items.

—Herr Krupp, the famous Prussian cannon maker, who employs many thousands of men, has compelled them all to be vaccinated. He provides the virus free of charge, and the penalty for refusal is immediate dismissal.

—The Senate of the University of Sydney have initiated a medical school in connection with that institution. They propose to confer three degrees —Bachelor of Medicine, Master in Surgery, and Doctor of Medicine.

Errata.—In second formula on p. 571, for ol. myrrhæ read *ol. morrhuæ*; in fourth formula, for syr. amyg. amar., read *syr. aurant. cort. rub.*

QUERIES AND REPLIES.

Drugs.—1st. Yes, if he wishes to do so, though it is not generally considered the proper thing 2d. Yes. 3d. Yes.

T. C. W. asks our subscribers to furnish their experience with chrysophanic acid in skin diseases; what strength they have used, etc.

T. C., Pa., would like to know the name for twin cows as known in the market, especially in England.

T. & B., N. Y.—You will find formula for Infusion of Golden Seal in this journal, May 6th, 1882.

MARRIAGES.

DANA—FARLEE.—On Thursday, April 27th, at the residence of the bride's parents, No. 50 West 46th st., New York, by the Rev. James H. Hoadley, Dr. Charles L. Dana, of New York, and Lilian G., daughter of George W. Farlee.

DAVIS—LEIGH.—On Thursday, April 20th, at St. John's Church, Bridgeport, Conn., by the Rev. E. W. Maxey, D.D., John Edward Lounsbery Davis, M.D., of Nyack, N. Y., and Mary Sophie, daughter of Wm. Leigh, Esq., of Bridgeport, Conn.

GARNER—APPLEBY.—In Spotswood, New Jersey, April 27th, 1882, by Rev. Chas. M. Parkman, Henry B. Garner, M.D., and Miss Amanda V. Appleby, both of Spotswood.

HALL—PEOPLES.—On Thursday, April 27th, at the residence of the bride's father, by Rev. L. Marks, D.D., assisted by Rev. Henry Rumer, H. B. Hall, M.D., of Riverton, N. J., and Reba, daughter of Mr. John Peoples, of Wilmington, Delaware.

HARRISON—NICOLL.—On May 6th, at the residence of the bride's parents, by the Rev. F. C. Putnam, Dr. S. D. Harrison, of Jersey City, and Agnes C., daughter of Dr. John Nicoll, of New Haven, Conn.

DEATHS.

DE YOUNG.—Dr Horace De Young, a prominent physician of Mauch Chunk, died suddenly, May 10th of epilepsy.

PAINE.—In London, England, May 1st, Dr. Horatio Paine, in the 40th year of his age.

SEARY.—On the 8th of May, Charles W. Seary, M.D., in the thirty-ninth year of his age.

WOOD.—In New York, on Thursday, May 4, 1882, of pneumonia, Dr. James R. Wood.

YOUNG.—May 3d, John Henry Weir Young, M.D. in the 23d year of his age.